

AMERICAN ARTISAN

November 1961

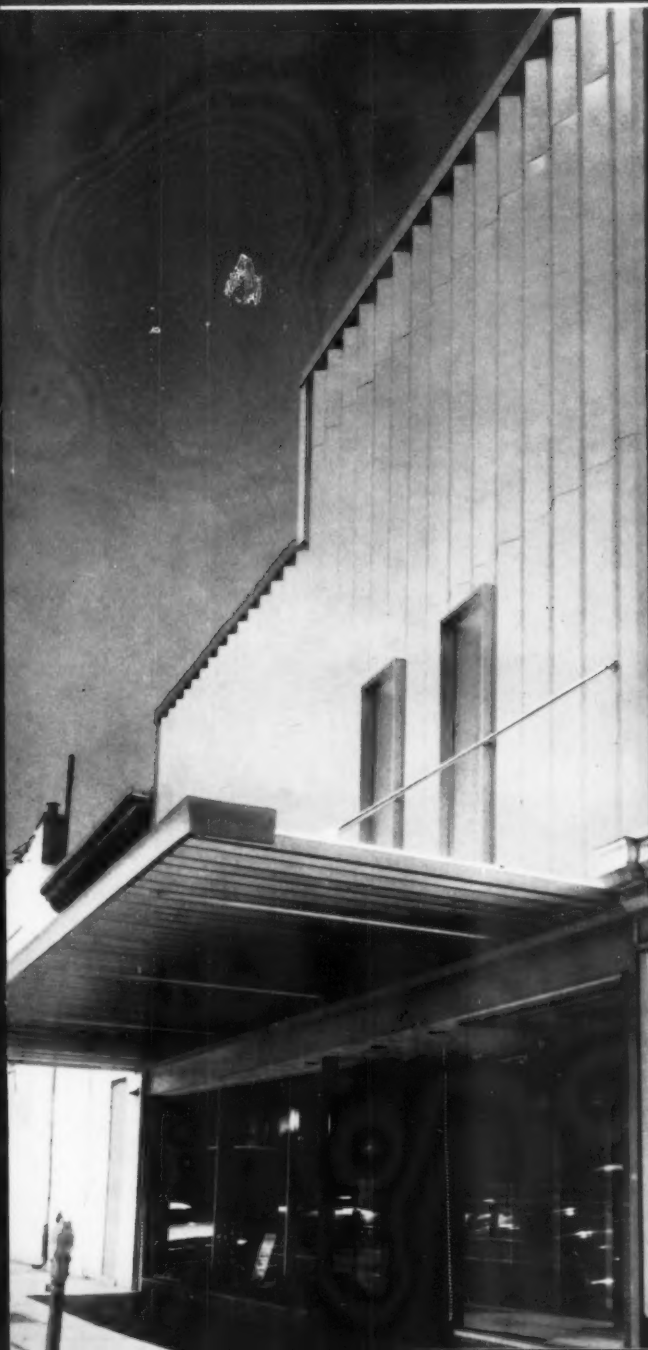
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Shop Fabricated panels form basis for
Downtown Shopping Centers by giving
a modern appearance to old buildings

• 52



NEW!
ONLY
\$350
LIST

15" WIDE —
38 sq. in. FREE AREA

Air Control's
NO. 175 BASEBOARD PERIMETER DIFFUSER

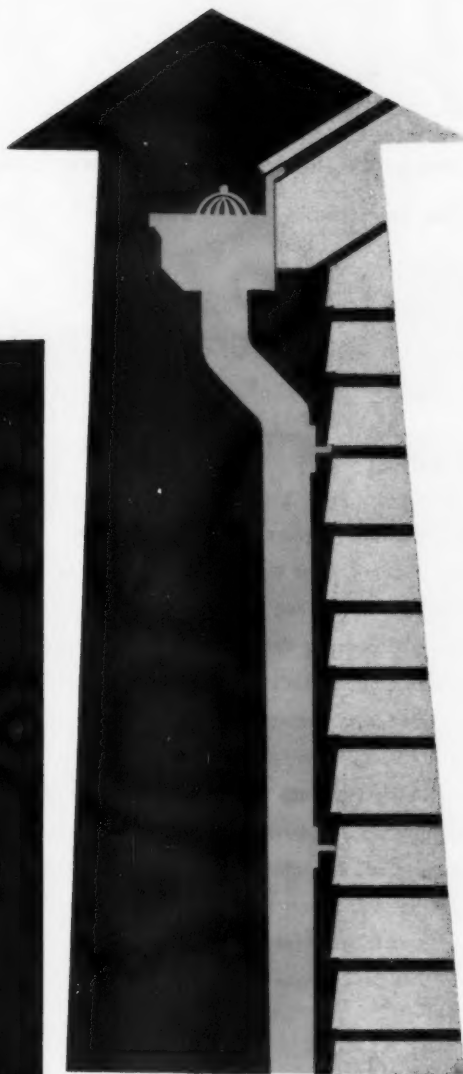
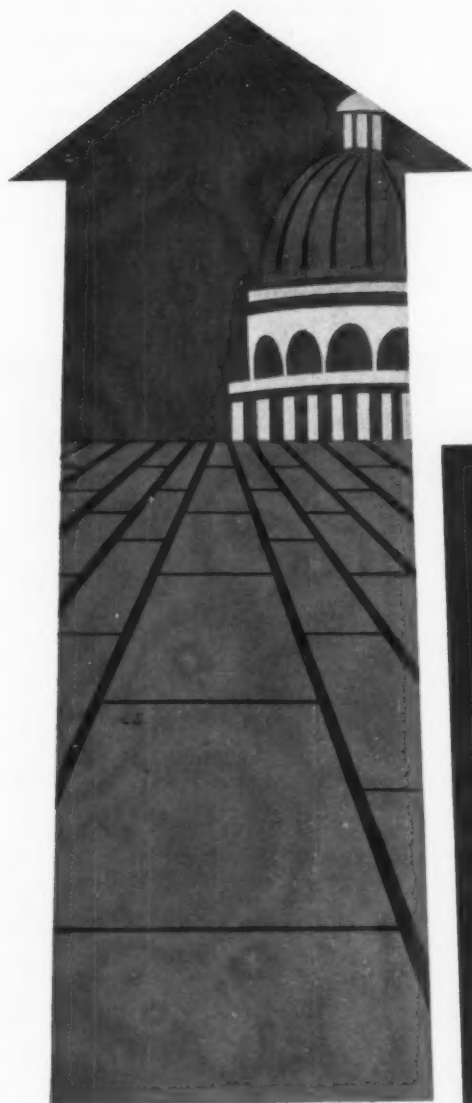


Air Control's new No. 175 packs a line of features that can't be duplicated anywhere for the price. Clean, crisp lines accent the functional styling of the No. 175—only 15 inches wide, with a BIG 38 square inches of available free area. Adjustable fins provide a wide fan-shaped air pattern to blanket up to 13 feet of wall. Fast and easy installation—no cutting and fitting. Durable, oven-baked beige enamel finish. A matching air grille is available for balanced performance and styling.

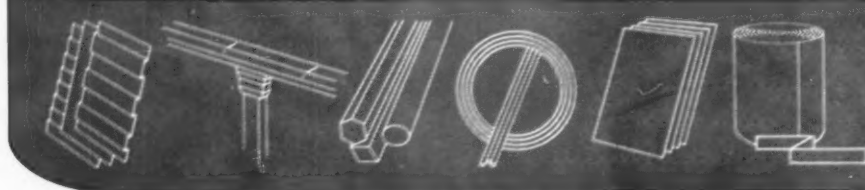
Now Air Control offers you the most extensive line of baseboard perimeter diffusers in the industry—the 180 series, the 170, the Super 38 and the new 175. Write today for Catalog 60-AC, showing Air Control's complete line of grilles, registers and diffusers, and for Bulletin No. 307-AC which describes the No. 175 in detail.

AIR CONTROL PRODUCTS, INC. 161 CENTER STREET, COOPERSVILLE, MICH.

West Coast Warehouse: Leigh Industries (California), Inc., 648 S. Anderson Street, Los Angeles, California. **MADE IN CANADA BY:** Leigh Metal Products Ltd., 72 York Street, London, Ontario. Western Sales Agency: E. H. Price Ltd., Winnipeg, Regina, Calgary, Edmonton, Saskatoon, Vancouver



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AMERICAN ARTISAN

- Warm Air Heating • Sheet Metal Contracting
- Air Conditioning • Ventilation And Dust Removal

November 1961

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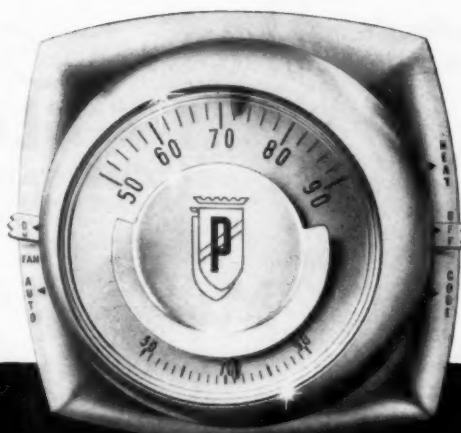
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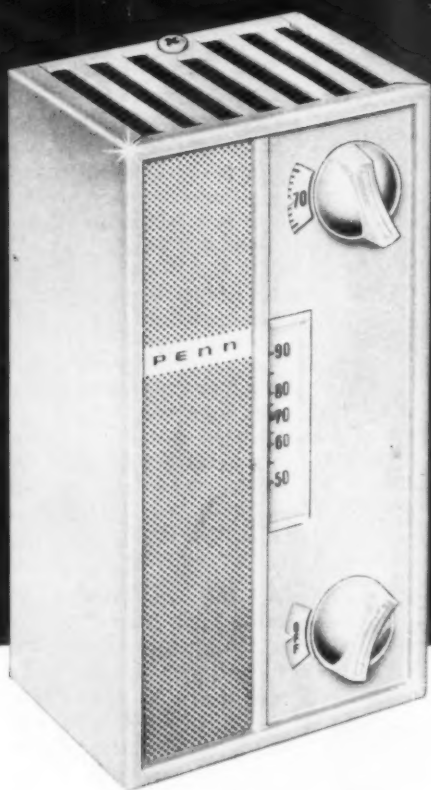
FOR HEATING - COOLING

Here's the new Series 888 RIMSET thermostat with its newest feature . . . separate temperature selection scale and thermometer scale! This is the one thermostat unit that handles 12 different heating and cooling functions. You just stock variables of the subbase . . . the same thermostat simply plugs onto any one of the subbases. Remember . . . RIMSET is easiest-to-set, easiest-to-read, simply dial the rim, the dial face remains stationary!



3

quality thermostats . . . take your choice for heating, cooling or heating-cooling jobs!



FOR LINE VOLTAGE HEATING

All-new, Type 822 line voltage heating thermostat features unique, easy-to-use, locking-type temperature selector knob. Extras include a built-in but concealed adjustable high limit stop . . . low operating differential . . . large terminals on back of thermostat for easy wiring. Models also for cooling or heating-cooling.



FOR HEATING ONLY

New . . . trim, thin-line Type 820 room thermostat with the dependable quality you expect and get from Penn. It features easy-to-read slide-set dial and separate thermometer scale . . . snap-acting contacts . . . ring-type heat anticipator. Easy to install and wire . . . requires no mounting bracket, no leveling.

Learn more about these better thermostats, ask your wholesaler or write to Penn.

PENN CONTROLS, INC. Goshen, Indiana

EXPORT DIVISION: 27 E. 38th ST., NEW YORK, N.Y.

AUTOMATIC CONTROLS FOR HEATING, REFRIGERATION, AIR CONDITIONING, APPLIANCES, PUMPS, AIR COMPRESSORS, ENGINES

the editor's notebook

Thumbing Through This Month's Artisan

... we learn how *Downtown Store Modernization Program Increases Sales Volume* for Middletown, Ohio merchants who are making their building's exterior more attractive. Metal panels of various designs have proven most suitable for achieving beauty, versatility of design, and practical to install over old style architecture such as roof overhangs; high, narrow windows; exposed gutters; and gingerbread ornaments. Modernization of entire downtown area offers the sheet metal contractor an opportunity to profitably participate in a civic improvement effort.

Control

... systems using millivolt generating equipment require servicemen to follow a step-by-step procedure to locate malfunctioning components. In *How Self-Generating Power Circuits are Serviced*, Ralph Taylor, General Controls Co., outlines the basic principles of power generating, causes for circuit failures, how they are diagnosed and repaired.

Sales

... demonstrations should be made with a flair of showmanship. In *Make your Sales Demonstrations Appealing* the salesman will learn how to tailor his approach to help the prospect to more clearly visualize the benefits of the product he recommends when installed by his company. Pointers are also given that make it easy for the prospect to understand the factors that influence his comfort and are essential to making an intelligent purchase of

Here's why *Sentry* AT-A-GLANCE TANK GAUGES

are tops in sales and performance



1 ACCURATE, DIRECT READING — Red indicator and large, non-fogging calibrated scale provides clear, visible reading from any angle.

2 HEAVY DUTY CONSTRUCTION — Non-leakable double wall dome secured to die-cast, non-corrosive zinc base assembly. Withstands 70 lb. air pressure per sq. inch. Fully guaranteed.

3 FOOL-PROOF MECHANISM — Simplified lever-type action. No magnets, gears, cams or springs to wear out. Non-corrosive thruout.

4 PROTECTED CORK FLOAT — Triple coated with phenolic base Bakelite. Absorption-proof. Resists oils, alcohol and other chemicals.

EASY TO INSTALL — Install quickly and easily, even in partially filled tanks.

5 FITS ALL TANKS — Factory adjusted to fit all tanks up to 12" deep with standard openings of 2" (Model D-2) or 1½" (Model D-1½).

Fastest selling in the industry, Sentry AT-A-GLANCE gauges are recognized for their superior qualities of accurate measuring, clear visible reading, rugged but simplified construction and long-life durability. They are fully guaranteed and "listed as standard" by Underwriter's Laboratories. Complete Literature, Sales Brochures and Counter Displays available.

SENTRY Superior Quality THERMA-GAUGE

Similar to the standard AT-A-GLANCE gauge above, but features a solid red thermometer type indicator and a two-piece die cast plug-nut assembly which permits simplified tank installation.



STOVE AND SPACE HEATER GAUGES
Several models with accurate, easy-to-read indicators to fit all tanks. Also models for small tanks such as power mowers and outboard motors.



REMOTE READING TANK GAUGES
Several models for outdoor reading of levels in tanks indoors, underground or at delivery fill pipe.



KRUEGER *Sentry* GAUGES
GREEN BAY • WISCONSIN

the editor's notebook

(Continued)

either heating and/or summer air conditioning systems.

Forum

... for consulting engineers to assist them in properly preparing specifications that not only assigns all sheet metal work to the sheet metal craft, but explained industrywide acceptable alternate methods for fabricating and erecting ductwork of various sizes and materials. *Hold School for Consulting Engineers* describes the forum conducted by the Washington, D.C. sheet metal contractor's association where slide films were used to bring out the elements of good construction practices.

Publicity

... is free advertising and it pays off for the dealer-contractor who is willing to take advantage of newsworthy events in which he has had an active part. *How Effective is Your Newspaper Publicity?* is a question that every dealer-contractor can profitably ask himself. This article outlines the practice of a Birmingham heating and air conditioning company that regularly submits prepared publicity items that often attracts prospects that are easily converted to customers.

In a Sales Slump? Try These Ideas

NOT LONG AGO, Bob Gordon, Hart & Cooley Mfg. Co., included in a letter to me a duplicated sheet he has been giving to his customers. The sheet outlines "Seven Rules for Sales Success" that should help every salesman increase his annual volume if he will continually

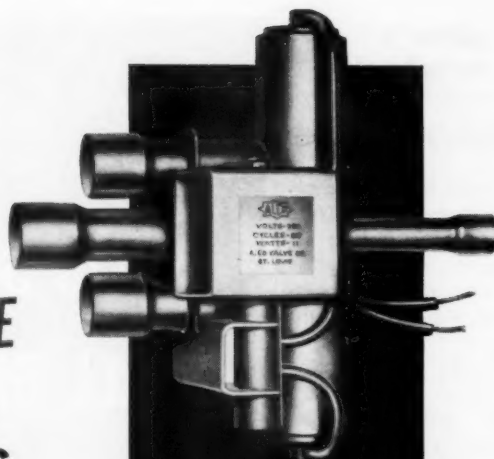
Made by **ALCO**
OF CAST IRON AND STEEL
like a Compressor
for LONG RELIABLE LIFE

4-WAY REVERSING VALVES

for all reverse cycle systems

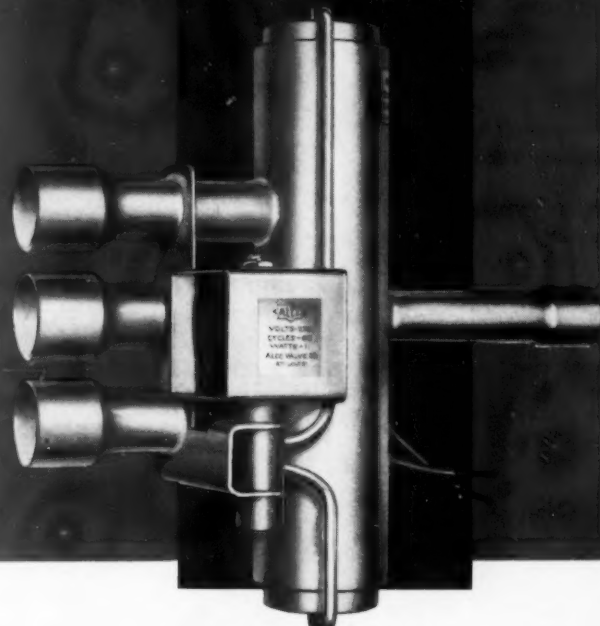
Features:

- fine machining and precision honing of cast iron slide and steel outer shell—NO PLASTICS ARE USED.
- operating tests of 300,000 cycles without failure to shift and without loss of tight seating—tests made by independent laboratories.
- shifting (change cycle) while the system is in operation with a 300 PSI differential.
- rapid shifting—to shorten change-over time and therefore shorten defrost cycle.
- the shifting of the valve independent of any pressure drops, and efficient shifting under any combination of operating conditions.
- mounting in any position—except with the pilot valve upside down.



#4WB4-57 Capacities:
2 to 3 tons—Refrigerant 12
3 to 5 tons—Refrigerant 22

#4WB6-79 Capacities:
3 to 5 tons—Refrigerant 12
5 to 7½ tons—Refrigerant 22



Call your Alco wholesaler—
write for Specifications.



- BUY SECURITY
- BUY QUALITY
- BUY ALCO

8223

ALCO VALVE CO.

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The one complete line of refrigerant controls: Thermostatic Expansion Valves • Refrigerant Distributors
Solenoid Valves • Suction Line Regulators • Flooded Evaporator Controls and Reversing Valves

the editor's notebook

(Continued)

apply them. The seven rules are:

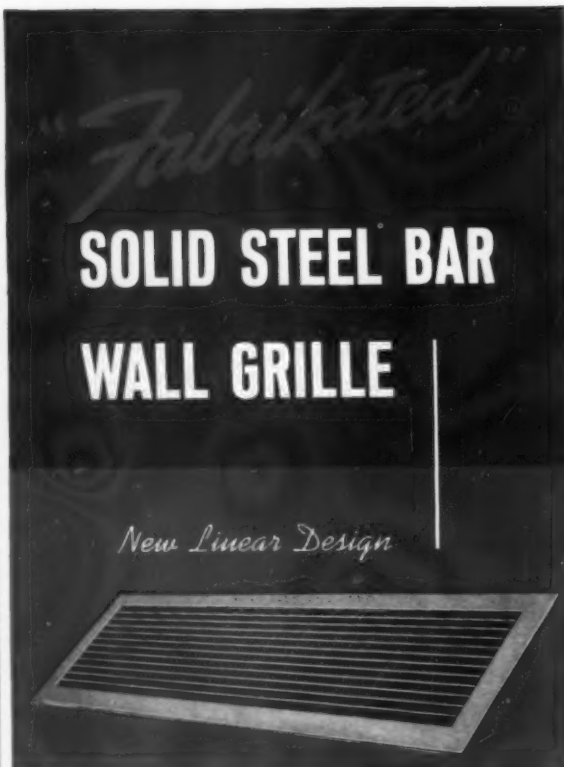
- 1) Don't wait for people to come to you. Always take the initiative in making acquaintances.
- 2) Carry something with you that will develop curiosity.
- 3) Don't sell statistics, sell ideas.
- 4) Be enthusiastic. Nobody will believe in your products unless you show that you do.
- 5) Do favors and pay particular attention to the kind of small favors that show your thoughtfulness.
- 6) Ask favors that require little trouble but build up the other fellow's self-esteem.
- 7) Give your client as much attention after you've sold him as before.

'Time Well Spent,' Artisan Reader Says

HERE'S THE SORT of mail we like to get: "Your last month's issue was very informative, and anyone who doesn't take a few hours out to scan your magazine is losing a lot" — *Walt Stevenson, Hoosier Heating and Air Conditioning Supply Co., Inc., Terre Haute, Ind.*

Teaching Machines: New Training Technique

IT'S INTERESTING to note that the use of teaching machines has progressed to such a point that the American Management Association allocated several sessions at a recent conference to reports by companies currently making use of this new technique in training. In addition to analytical talks by speakers from all parts of the country, the conference featured a number of pertinent discussions on video tape. A special demonstration, using the



No. 331 WG

This new "Fabrikated" design wall grille has 14 gauge (.083) horizontal bars $\frac{3}{4}$ " deep. Vertical bars are 14 gauge by $\frac{1}{2}$ " deep. All bars are solid steel with rounded (mill) edges. Construction is exceptionally rigid. Free air is approximately 70%.

Recommended for ceiling, wall, and sill window installations for continuous design effect in schools, hospitals, banks and public buildings where heating, ventilating or air conditioning systems are required.

No. 331 WG design can also be furnished in core style only without rims or borders. Write for Catalog No. 61.



Always Loading—Always Progressing

**THE INDEPENDENT
REGISTER CO.**

3747 E. 93rd STREET • CLEVELAND, OHIO

the editor's notebook

(Continued)

facilities of AMA's Management Television and Communications Center, illustrated a new "telecast communications system." The demonstration illustrated how television, in conjunction with programmed learning, can be applied directly to the problems of management training.

When Pressures Mount —Stay Cool, Man, Cool

WHILE ATTENDING a meeting in Washington, D.C., recently I overheard a businessman at an adjoining table say to an associate, "Anyone who can keep calm throughout all this confusion just doesn't understand the situation."

I guess he's right when it comes to trying to figure out what's going on at the United Nations, Europe and Africa, but I certainly hope his remark doesn't apply to our industry where a calm approach is needed to offset the pressures that seem to multiply when a contractor decides to stand by his original quotation.

Customer's the Boss, Steel Man Says

I LIKE the simple logic of a remark made recently by Marcus J. Aurelius, administrative vice president, United States Steel Corp. Mr. Aurelius came right to the point. He said: "If steel products aren't worth more to our customers than they cost, we can't stay in business."

He went on to point out that "profit and loss are simply the signals that tell a producer whether he has served, or failed to serve, the most urgent demands of consumers."

"In a market economy like ours," he said, "the customers determine who earns profits and who suffers losses. The customer is boss."

New gas valve Faces up to SPACE LIMITATIONS in heaters

- All adjustments on one face
- Straight-through or right-angle outlet



Here's the only completely new space heater gas valve on the market! It's not a revamp. It's not a redesigned water-heater valve. This new low-cost AP-Model 159 is a special space heater valve with all connections and adjustments on one face. This "unilateral" design works with a choice of straight-through or right-angle outlets to give you the ultimate in installation ease—a valve that mounts quickly even in the tightest corners.

The A-P Model 159 valve is manufactured as a complete unit with *electric actuator for remote electric thermostat* or with *integral thermobulb snap-action thermostat* (shown). Both types with or without gas regulator. Other features include aluminum valve body, thermomagnetic safety pilot, safe lighting, 100% safe shut-off, built-in "A" and "B" valves. Delivers 67,400 Btu less regulator. For all heating gases: L.P., city and sour.

Latest development in CC's complete line of gas heating controls, the Model 159 is now being used on the better, new space heaters. Write today for full facts.

CC *Creative controls for industry*
CC **OF AMERICA**
HEATING AND AIR CONDITIONING DIVISION

2452 N. 32nd St., Milwaukee 10, Wisconsin • Cooksville, Ontario • Zug, Switzerland

the editor's notebook

(Continued)

Discussing the future of American industry, Mr. Aurelius stated: "We must pay attention to far more than the functions of materials if we are to preserve the freedom of action and initiative which makes it possible for us to improve our materials. We must be as devoted to perfecting the function of ideas as we are to perfecting the function of materials. We must deal with thoughts as well as things, for the thoughts of the American people will determine, in the long run, whether we shall retain the system of enterprise and achievement that built our nation, or whether we shall wither away into a system of servility in which there are no customers to boss us — only commissars."

Cites Necessity For Safety Programs

"CONSTRUCTION accidents kill 2000, injure 180,000, and cost \$2 billion every year," said Leo A. Wexler, Wexler Construction Co., Inc., in a recent issue of the National Safety Council's *Newsletter*.

Mr. Wexler points out that more and more firms who plan building expansion are realizing that they are paying for a good part of this annual accident cost, and for this reason are "turning to contractors with active safety departments, who work to reduce this excessive cost."

Research Leads to New Design, Higher Profits

WE RECENTLY LEARNED that a new design incorporated in its product by one manufacturer resulted in a 200 percent increase in sales because customers were enabled to save on installation

QUIET AUTOMATIC SUSPENDED FURNACES 7 NEW SIZES



**85,000 B.T.U.
to
335,000 B.T.U.
CAPACITIES**

Right or Left Air Flow

**PLUS 3 LARGER SIZES
224,000 B.T.U.
350,000 B.T.U.
450,000 B.T.U.**

All Furnaces Equipped
w/Minneapolis Controls and
QUIET AUTOMATIC OIL BURNER

**It pays to buy a
Quality - oil furnace**

QUIET AUTOMATIC BURNER CORP.

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the editor's notebook

(Continued)

costs. Here's another example of research paying off.

Softball Team Promotes Heating Industry

HERE'S HOW ONE industry fund has been used to publicize the activities of a heating and air conditioning group. The Labor-Management Industry Fund of Sheet Metal Workers Union Local #55 is sponsoring a big league softball team called the "Climate Controllers." The team, named after the Fund's public service function, the Climate Control Council, will play in both the Atlantic Seaboard Major League and the Jones Beach League. Industry fund trustees serving on the team's board of directors are: John Stravalli, Wes Sheet Metal Corp., Farmingdale; Sid Kaminsky, City Sheet Metal Air Conditioning Corp., Valley Stream; and Richard Napoli and Joseph Rossbotham of Local #55.

Utility Promotes Warm Air Dealer's Services

IT'S INTERESTING — and encouraging — to learn about some of the work being done by utilities to promote heating and air conditioning. Recently I saw a fine sales letter sent out early in the summer by the Peoples Gas Light and Coke Co., Chicago, to its heating customers. "Of all the homeowners in the city of Chicago," the letter said, "there is no one in a better position than you are when it comes to air conditioning."

"You heat with gas. And you do it with a warm air heating system. Therefore, you've already got part of your central air conditioning."

Enclosed with the letter was a brochure urging the

**ROUTINE
ORDERS**

... are shipped within 7 days!

**RUSH
ORDERS**

... are shipped immediately!



**either way, you get the
fastest delivery in the industry from**

***Lima* REGISTER COMPANY • 1785 N. Cable Rd., Lima, Ohio**

Write for our catalog and prices.

A COMPLETE LINE OF REGISTERS, DIFFUSERS AND GRILLES FOR HEATING
AND COOLING... QUALITY-PLUS PRODUCTS OF AMERICAN CRAFTSMANSHIP.

the editor's notebook

(Continued)

homeowner to "go duct hunting," and explaining that if his duct work was adequate, he might already own 25 percent of his air conditioning. Another enclosure illustrated typical installations.

"Read this material over at your leisure," the letter suggested. "Talk it over with your family. Discuss it with your heating dealer-contractor; he's an expert.

"But make up your mind now not to suffer through another hot, humid summer in Chicago."

How to Get Retirement Plan Into Operation

DURING THE PAST seven months, this column has described various deferred compensation plans for key employees, explaining why they are worthwhile to a dealer-contractor and how much they actually cost a company. This month we describe how to get a deferred compensation plan started, as outlined in bulletin 107 of the Small Business Administration's Management Aid series.

The first step is to consult an attorney, accountant or a life insurance underwriter with knowledge of this particular field and with experience in it. Perhaps you will wish to talk with all three. Certainly, any plan you consider should be checked for tax implications by a qualified specialist experienced in the work. Your plan should be checked also for contractual implications by an attorney who is competent on such matters. Finally, your plan should be designed by a life insurance underwriter with a background on this subject if the plan is to involve the use of life insurance.

A decision needs to be made as to just which persons are to be included, and what size payments are to be

INSTALLATION & SERVICE IS *So Easy*

WITH



HEATING UNITS



HERE'S WHY:

- 1 Shipped completely assembled and wired.
- 2 Full channeled base.
- 3 Compact design.
- 4 Easily accessible components.
- 5 Large blower compartment allows ample space to:
 - change filters
 - oil and service blower and motor

WRITE...

for information and name of nearest distributor

THE JOHNSON FURNACE COMPANY
2129 WEST 117TH STREET, CLEVELAND 11, OHIO

the editor's notebook

(Continued)

specified for each. You should decide what restrictions are to be placed upon the retired key man if he is to qualify for payments of the retirement amounts — such as the giving of counsel and advice, restrictions from entering competing businesses, or from divulging trade secrets. You should decide whether payments are to be made to heirs, should the key man die either before or after retirement. You should choose between a formal contract, an informal letter of intent, or an oral arrangement. You should specify whether either party can terminate the arrangement, and then under what circumstances. And you should also determine whether a key man severing employment prior to retirement would have a "vested interest" — that is, a right to some of the money if he quits — and how the actual amount of any vested interest should be computed.

You should discuss these and other technical aspects of a proposed plan with legal and accounting counsel, and you should confer with a life insurance underwriter experienced with such policies. Don't guess as to the desirability of using life insurance or internal funding in your setup. Learn the full range of facts and their significance to your business. After the proper information has been developed, a plan can be simply and easily put into effect.

As is the case with every undertaking by management, there are certain pitfalls that await the unwary. Some of these pitfalls will be touched upon in this column next month.

Clyde M. Barnes

Editor

You can't beat Generals!

When General Filters introduced the first step-design, all-wool element fuel oil filter, a standard of performance was established that has often been imitated. The high-grade all-wool element stops moisture which other elements won't do. Solid particles, like scale and rust from dirty tanks, are trapped in the step-design filter element. The wool element is BONDED to the wire-mesh core by a patented process to keep out small lint particles—assuring clog-free nozzles. The steel body is finished inside and out with corrosion-proof epoxy for lifetime service. The cover and body are sealed with a heavy-duty gasket for leak-proof operation. *You can't beat Generals!*



TWO SIZES FIT ALL HOME PLANTS

Two models of General filters will accommodate all home-size installations. For especially dirty tanks or larger than average plants a heavy-duty model is available. General also manufactures a complete line of heavy oil and high and low pressure filters for industrial applications. Write for information.



PENNY-PINCHING Short-changes Profits



DON'T BE FOOLED! Imitations of General Replacement Cartridges, costing only a few pennies less, are causing call-back troubles for contractors. They don't filter out the lint, resulting in clogged nozzles. General supplies a new heavy-duty gasket in every replacement package.

Cheap imitations use very thin gaskets, inviting leaks. Why take chances with customers' goodwill—specify genuine *Generals* on your next order.

For Reliability Specify *Generals* from Your Jobber

Moisture-Matic HUMIDIFIER

For Fool-proof Home Comfort

Controlled moisture at its best, for the heated home, is built into this General Humidifier. Chrome-plated valve eliminates all moving parts. It is compact, safe, and quickly installed. Molded phenolic corrosion-proof pan. One year guarantee on parts.



CLEANRIGHT Soot Remover

Burns off soot easily and quickly in a natural manner without flash or flare. Dust or spray on like powder. Harmless to burner parts. HELPS CUT FUEL BILLS UP TO 25%! Keeps furnaces heating like new. Sell to owners on every call.



GENERAL FILTERS, INC.

43800 GRAND RIVER AVENUE

NOVI, MICHIGAN

IN CANADA: Canadian General Filters, Ltd., 30 Crockford Blvd., Scarborough, Ontario

A REPORT FROM TRANE: AN ADVANCED NEW LINE OF AIRFOIL FANS

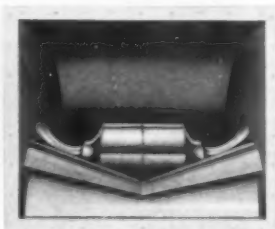
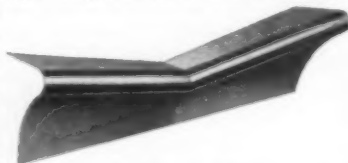
TRANE announces a completely new line of Airfoil Fans. It is a new and advanced line—that provides quiet operation, high efficiency and uniform air delivery.

There's a TRANE Airfoil Fan for virtually every application—for comfort heating, ventilating or air conditioning—for higher pressures of Class III applications—for high or low pressure industrial process systems. This new line is available in a complete size range of Class I, Class II and Class III—Class I and II from 24" to 89"; Class III from 24" to 73". Units have 88 to 91 per cent total efficiency rating.

Extensive research was done on every component of the new TRANE Fan. Countless tests were run. New manufacturing processes were developed to duplicate the exact contours of precision-built test models. Result: A fan that brings improved performance to air moving equipment.

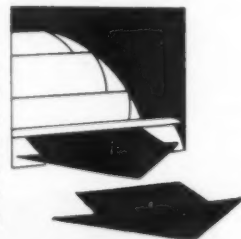
EXCLUSIVE AIR CUTOFF

In developing this new line of Airfoil Fans, a design feature of major importance is the new type of air cutoff. The sloping rolled design of this cutoff helps create a more uniform flow of discharge air and reduces recirculation of air between the housing sides and fan wheel for quieter, more efficient fan operation.



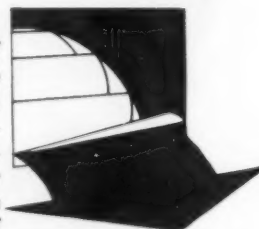
OLD STYLE CUTOFF

With standard cutoff parallel to fan blades, definite impact results as air leaves the full width of blade, hits the full width of cutoff. This non-uniform air discharge sets up an objectionable sound that repeats at blade frequency.



NEW TRANE CUTOFF

The sloping rolled cutoff peels the air off fan blade edges; air from the inlet end of each blade contacts highest point of the sloping cutoff. It intercepts the air along each point on the blade edge. As the last of the blade edge passes the lowest point of the cutoff, air from the inlet end of the next blade is already contacting the high point of the cutoff. The result is a continuous, smooth deflection of the air that is exceptionally quiet, with no "thumping."



ENTIRELY NEW BLADE DESIGN DEVELOPED

Over a hundred different types of airfoil blade shapes were developed and tested. These included blades in a wide variety of sizes and shapes—some with camber and some without.

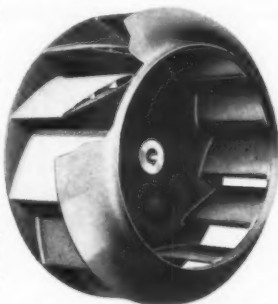
This new TRANE Airfoil Blade has a very slight camber and a blade thickness that is 12 per cent of the blade's chord. This relatively thick blade contributes to the higher fan efficiency.



AIRFOIL WHEEL WITH 12 BLADES

Integrated with the blade design was the development of the Airfoil Wheel and determination of the optimum number and angle of blades within the wheel. Wheels with various numbers of blades were tested. When 12 blades were used, it was found that the wheel operated most quietly and efficiently. It was also found that the sound generated by the 12-blade wheel was of a higher frequency and could be more easily attenuated.

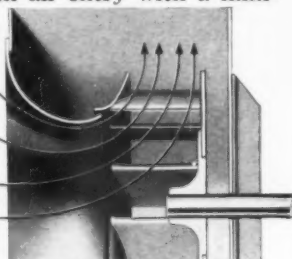
The structural design of the wheel was proved in stress analysis tests. Wheels were run well above maximum design speeds without damage.



INLET CONE AND WHEEL RIM DESIGN ELIMINATE POWER-WASTING EDDIES

The inlet cone and wheel rim were designed and developed to work together. The design of the inlet cone permits smooth air entry with a minimum of shock and turbulence. Power-wasting eddies are eliminated.

The wheel rim reduces turbulence in the entering air as it leaves the inlet cone. By matching the contour of the inlet cone, the design of the wheel rim assures smooth, uniform air flow through the wheel.



NEW MANUFACTURING PROCESSES DEVELOPED

New manufacturing processes were developed for the TRANE Airfoil Fan to assure precise accuracy.

Each blade is manufactured from a single steel plate which is formed around a die with the trailing edge electrically welded and ground smooth. This precision die-forming and grinding results in an unusually smooth blade that is duplicated exactly and consistently time-after-time.

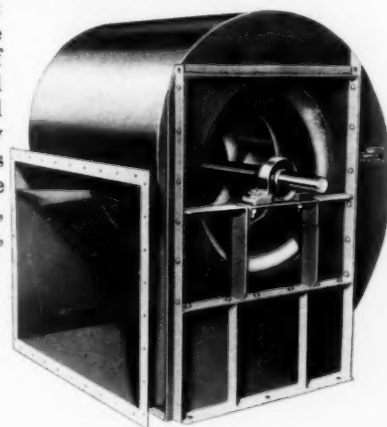
The 12 die-formed blades are continuously welded to a formed side rim and hub plate. Rigid fixtures hold components in precise position and a backstep welding procedure is used to prevent distortion and to assure close dimensional tolerances. The finished assembly is then mounted on a solid steel shaft and electronically balanced. The result is an unusually smooth-running, durable wheel.

As a result of advanced TRANE development and engineering, the new Airfoil Fans are exceptionally quiet in operation and are sturdily built to provide long life, trouble-free operation.

ACCURATELY RATED

All TRANE Airfoil Fans are accurately rated, carry the AMCA Certified Rating Seal.

WANT MORE FACTS on the new line of TRANE Airfoil Fans? Just call your nearby TRANE Sales Office—or write to TRANE, La Crosse, Wisconsin.



For any air condition, turn to

TRANE

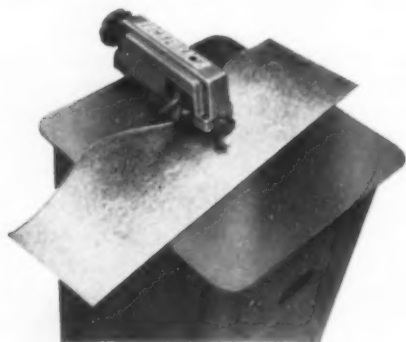
*Manufacturing engineers of air conditioning,
heating, ventilating and heat transfer equipment*

THE TRANE COMPANY, LA CROSSE, WIS. • SCRANTON MFG. PLANT, SCRANTON, PA. • CLARKSVILLE MFG. PLANT, CLARKSVILLE, TENN. • SALT LAKE MFG. PLANT, SALT LAKE CITY, UTAH • TRANE COMPANY OF CANADA, LIMITED, TORONTO • 101 U.S. AND 20 CANADIAN OFFICES

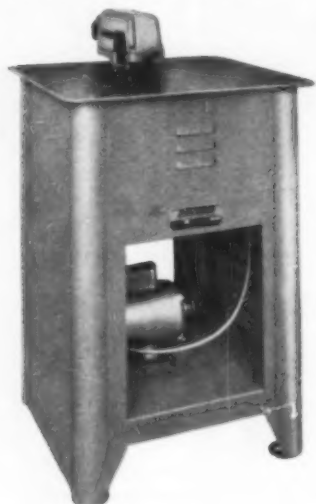
latest news about sheet metal shop profits.....

Lockformer—the name in sheetmetal forming equipment—now brings you five new machines to increase *your* shop's production versatility and output.

Each is designed and engineered to give you the same dependable operation . . . the same long trouble-free service . . . the same profit-making shop-proven features you expect—and get—in all Lockformer Equipment.



NOTE: Each of the Auto-Guide models turns a flange to match perfectly the Pittsburgh Locks produced on its companion Lockformer.



New Model 18 Auto-Guide POWER FLANGER

Lockformer Model 18 Auto-Guide Power Flanger has the same profit-making performance features as Model 16, but is designed for lighter gauge work. It turns up $\frac{3}{4}$ " flanges on 18–26 gauge material.

New Model 16 Auto-Guide POWER FLANGER

Follows any edge you feed it, AUTOMATICALLY! Just turn up a starting flange, start the material through the machine and LET GO! Anyone in the shop can produce perfect flanges every time on inner or outer radii, irregular curves or straight edges. Forms a perfect $\frac{3}{4}$ " flange on 16–24 gauge material.



New Lockformer Model 20 Button-Punch SNAP LOCK MACHINE

This new nine-station model is specially designed for commercial and industrial duct work . . . produces both the receiver lock and button-punched right angle flange on 20 to 24 gauge material at speeds up to 65 fpm. Saves up to 50% assembly time on one piece or two-piece ducts . . . no hammer-over edge, no need for hand tools. Just insert the flange, give a push and . . . SNAP! . . . the duct is complete, flush corners and all.

5 new machines from LOCKFORMER

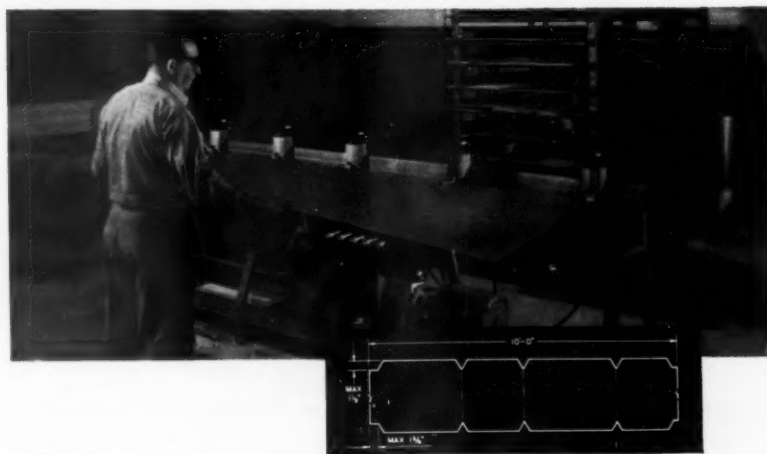
New Lockformer CLIPROL

Produces government cup clips (pocket locks) uniformly and accurately at production speeds of 70 to 80 fpm., and at very low unit cost. Saves up to 40% of the time and labor needed to fabricate clips by ordinary hand brake methods. Models available for 1½" and 1½" standing seam . . . 22 ga. galvanized or .040" aluminum.



New Lockformer SPEEDNOTCH

Gangnotches without layout or scribing—up to 600% faster than by hand methods. The perfect tool to prepare ductwork to receive government cup clip (pocket lock), bar, slip or "S" and drive connections. Instantaneous setting for up to 5 notches in pieces up to 16 gauge mild steel. Profitable even on a single-piece set-up.



LOCKFORMER

TIME SAVING, MONEY MAKING EQUIPMENT

Write today for a complimentary copy of our new catalog...with detailed specifications on the new machines shown above and complete information on other time-saving, money-making Lockformer equipment. The Lockformer Co., Dept. A, 4615 W. Roosevelt Rd., Chicago 50, Ill. In Canada: Brown Boggs Foundry & Machine Co. Ltd., Hamilton, Ontario.



The first **ELECTRONIC**



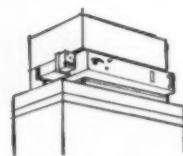
Living Area Control Center provides a constant performance check. Indicates when collectors need washing. Permits remote operation of fan.



Filter Flag® indicates at furnace or air conditioner and at the Living Area Control Center when the protective screen needs cleaning.



Simple Washing Kit includes everything the homeowner needs to wash the air cleaner collectors (normally once every three months).



One-Side Access feature makes it possible to install the unit in any location. Clearance is required only for removal of the door assembly.

AIR CLEANER

designed exclusively for the home!



Here's the profit package that introduces an entirely new concept in elegant living—the Self Cleaning Home! With this exclusive new air cleaner you sell *many* ideas . . . less housework, fewer cleaning and decorating bills and effective removal of airborne allergy irritants. And, you offer builders a dramatic new sales feature . . . guaranteed to stimulate interest in their homes. Either way, the Honeywell Air Cleaner can help you beat the cost-price squeeze—and it's good for your add-on business, too!

The complete unit comes to you as a package and can be installed simply. You keep full profits because the homeowner performs the simple maintenance himself. The initial low cost of the Honeywell Air Cleaner is also an important selling point. And because it requires no plumbing and fits easily into any forced air system, it can be installed for up to \$100 less than other units.

Available in two sizes (20 x 25 and 16 x 25 in.), the Honeywell Air Cleaner is only 7 inches thick when installed in the return air duct. Handles up to 2200 CFM (about 5½ tons of cooling—220,000 BTU output, heating).

Tests by the National Bureau of Standards' Dust-Spot Methods prove that the Honeywell Electronic Air Cleaner traps from 70 to 95% of all airborne particles, depending on rate of air flow. By comparison, standard mechanical filters have an efficiency range of from 5 to 8%; and charged media filters average less than 50% efficiency.

For complete details on Residential Electronic Air Cleaning and for a free merchandising kit, call your nearby Honeywell office. There are 112 throughout the country. Or, write Honeywell, Dept AA-11-142, Minneapolis 8, Minnesota. In Canada, write Honeywell Controls, Ltd., Toronto 17, Ontario. *Sales and Service offices in all principal cities of the world.*

*Trademark

Honeywell

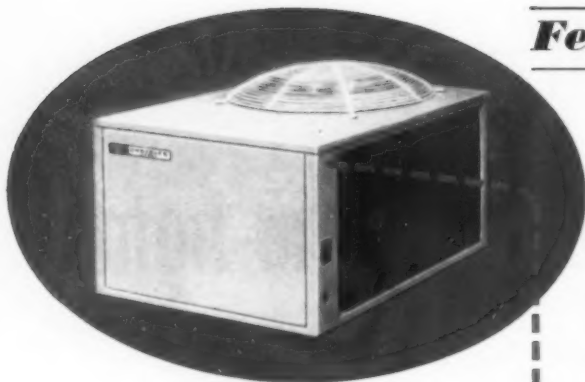


First in Control

SINCE 1885

HONEYWELL INTERNATIONAL

Sales and service offices in all principal cities of the world. Manufacturing in the United States, United Kingdom, Canada, Netherlands, Germany, France, Japan.



Featuring Chrysler's New Model 1140

Built To Sell For Less Than \$500 Plus Installation

This is really great news for your builder customers, and plenty of sure sales for you, too. This high-quality, low-priced Chrysler residential or commercial air conditioner is still another example of Chrysler's engineering leadership. Fancy frills and extra weight are gone, but you can count on Chrysler's reliability and minimum service. The 1140 delivers 33,000 BTUH — enough cooling power to cool up to 2,200 square feet of living space.

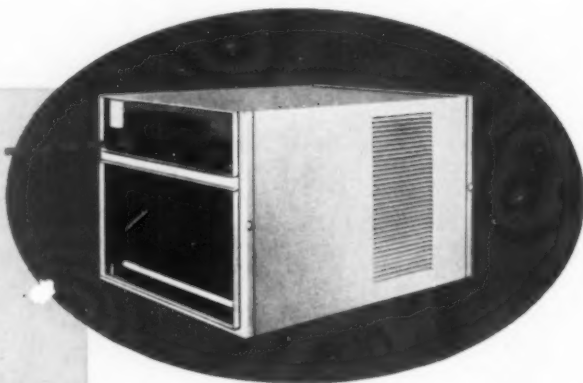
All the famous Chrysler quality and engineering advances are there, too. This, plus the wonderful price you can profitably quote with confidence—less than \$500 plus installation—will put the Chrysler 1140 at the top of your list of best-sellers for '62.

Featuring Chrysler's snap-in cooling

With the new Chrysler Model 1254 for residential air conditioning, installations are faster, easier, less expensive than ever before possible. It's factory-charged, factory-tested, so there's no on-site refrigerant work. Simply run the armored line from the cooling coil to the condensing unit . . . and snap it on. Takes only a couple of minutes, and a hole through the wall the size of a single brick. You'll handle extra jobs . . . without extra help.

The Chrysler 1254 also features the all-new "deep probe" motor guard, an overload protector wired directly to the motor windings. It eliminates the need for four separate (and complicated) control components . . . increases reliability and simplifies servicing.

Add to these outstanding engineering advances a cooling capacity of 35,000 BTU's, and you have the most saleable system on the market.



WITH CHRYSLER, YOU CAN BE A SHOW-OFF

With High Quality and Low, Low Cost



Featuring Chrysler's New Gas Furnaces

These smartly-styled Lo Hi-Boy gas furnaces are ideal teammates for either the 1140 or the 1254 air conditioners above. They're available in four capacities, from 80,000 to 150,000 BTUH. All feature new step-controls for smoother, quieter starting. All have built-in bottom panels to eliminate grouting. And conveniently-located knock-outs mean faster, easier installation.

These furnaces are part of a newly-expanded Chrysler line of 34 gas furnaces specially designed to meet builder requirements . . . competitively priced, with capacities from 50,000 to 200,000 BTUH. Call your Chrysler distributor today, and see Chrysler's new line of quality air conditioners and furnaces for 1962. Or write us for your copy of "The Chrysler Line is the Quality Line."



CHRYSLER AIRTEMP

A Division of Chrysler Corporation
Dept. J-111, Dayton 4, Ohio

WHAT'S HAPPENING...

Program Events For RACCA Convention

CHICAGO — The Refrigeration and Air Conditioning Contractors Association National reports that a tentative convention program has been set up, which now awaits final approval by the convention committee. Following is a program outline:

- Feb. 10 Board of Directors
9:30 a.m. - 5:00 p.m.
- Feb. 11 General Session
10:00 a.m. - 12:00 p.m.
2:00 p.m. - 4:00 p.m.
- Feb. 12 Annual Business Meeting and Elections
10:30 a.m. - 12:30 p.m.
- Feb. 13 Board of Directors Luncheon
- Feb. 14 General Membership Luncheon and Installation of New Officers

License Columbus Indoor Comfort Bureau

COLUMBUS, OHIO — Official licensing of the Indoor Comfort Bureau of Greater Columbus was celebrated recently during ceremonies held at the Press Club of Ohio. The Columbus bureau is the second to be formed in Ohio, the 15th in the United States. Membership includes dealer-contractors, wholesalers, the Columbus and Southern Ohio Electric Co., and the Ohio Fuel Gas Co. Officers of the new bureau are Arthur R. Haire, Haslett Heating & Cooling, Inc., president; Robert Tolliver, Crawford Furnace Co., vice president; Louis A. Erf, Vorys Bros., Inc., secretary; and Ben Levin, Midwest Roofing & Furnace, Inc., treasurer.

NOFI Discusses New Oil Heat Programs

NEW YORK CITY — New and expanded programs for the improvement of the oil heating industry and the promotion of oil heat's advantages were described in a recent series of speeches by Glenn L. Werly, president, National Oil Fuel Institute, Inc. Addressing the memberships of various oil heating associations, Mr. Werly discussed programs covering:

1) *Education.* NOFI has appointed a full-time education director — Edward W. Garrison — who will initiate special training programs covering management, operations, sales, installation and service. Mr. Garrison was formerly training manager for the heating and air conditioning division of Stewart-Warner Corp.

2) *Market research.* One project now under way, Mr. Werly said, is designed to give a picture of oil heating in national and local markets and typical regional markets. The study will take into account the nature of the competition in these areas and will analyze ways in which oil heat promotion has been successful.

3) *Codes and ordinances.* Included among the areas in which the institute has acted to better oil heat's position to date, Mr. Werly stated, are building specifications and air pollution regulations.

Mr. Werly called on local groups to participate actively in all programs to improve the oil heat picture. "Oil heat will move ahead," he said, "only as the thousands comprising it as an industry work to better their individual firms in conjunction with NOFI's programs. Dealer-con-

tractors who are alert, cooperative and active will forge ahead in the next period. So long as we work together to improve the over-all picture we have every reason to look forward with confidence."

Offer AC Service Course at Chicago Trade School

CHICAGO — Air conditioning service classes are now being conducted at the Allied School of Mechanical Trades, Inc., under the sponsorship of the Refrigeration and Air Conditioning Contractors Association of Chicago. Chairman of the RACCA training committee is Guido F. Restagno. Other members include M. S. Axelrod, R. B. English, W. L. Long, W. J. Monkerud and W. J. Thebeau. The program has been endorsed by numerous manufacturers and suppliers, who have offered equipment of all types for use in the training program.

Mitchell Resigns As Chairman Of NJBSJD

WASHINGTON, D. C. — R. J. Mitchell has resigned as chairman of the National Joint Board for the Settlement of Jurisdictional Disputes, according to the Council of Mechanical Specialty Contracting Industries, Inc. His

(Continued on page 22)

Detroit Observes Better Heating & Cooling Week

DETROIT — "Better Heating & Cooling Comfort Week" was recently observed in Detroit by proclamation of Louis C. Miriani, mayor of the city. The program was held under the sponsorship of the Better Heating and Cooling Bureau of Detroit, whose contributions to the advancement of comfort conditions within the home were recognized by the mayor at a special luncheon held at the Sheraton-Cadillac hotel.

The bureau announced at the luncheon that it will now seek a comprehensive heating and cooling ordinance together with applicable licensing requirements. The mayor welcomed the bureau's suggestion and offered his personal cooperation in this endeavor, according to BHCB.

Mayor Miriani read a telegram received from John B. Swainson, governor of Michigan, extending congratulations to the bureau for its "outstanding program in the area of warm air heating and cooling."

Attending the press reception, in addition to manufacturers,

suppliers and government officials, were representatives of such groups as the Detroit Edison Co., Standard Oil Co., Michigan Bell Telephone Co., the Better Business Bureau, Michigan Consolidated Gas Co. and the Detroit Building Trades Council. Also attending were representatives of Detroit newspapers, business magazines and local TV stations.

Wilmington Builders 'Well Pleased' With Results of Cooling Campaign

WILMINGTON, DEL. — Builders participating in the "Crowning Touch" year 'round central air conditioning program recently conducted in Wilmington, Del., were well pleased with results obtained, according to the Air Conditioning & Refrigeration Institute. ARI states that during the first three months of the program, the nine builders originally identified with the project reported combined total sales of approximately 225 homes featuring "The Crowning Touch" for an aggregate return of more than \$3,000,000, and estimated that approximately 75,000 visitors had been attracted to their sites.

At the conclusion of the program, all the builders said they would participate in a similar project if opportunity were offered. They reached a number of conclusions based upon their individual experiences during the campaign. For example, one builder said he believes that central air conditioning is a "status symbol" and that the industry

Report Coming Rise in Social Security Taxes

WASHINGTON, D. C. — Social Security taxes will be increased January 1, according to the Chamber of Commerce of the United States, and there will be further tax increases in 1963, 1966 and 1968. The 1962 tax boost, the chamber says, is needed to finance the added benefits which Congress ap-

(Continued on page 30)

could boost sales by devising a visible appurtenance giving evidence of it. Another thinks air conditioning should be "glamorized," made more appealing to women on a basis other than that of physical comfort. Other suggestions included better communication between program promoters and builders, a larger advertising budget, and a different theme.

During the campaign, the project committee entertained a delegation of power company executives from various parts of the country, explained the program to them and took them on a tour of homes featuring "The Crowning Touch." According to ARI, the visitors indicated they would gladly support similar projects in their own communities. The association offers to provide utilities interested in such a project with a coordinated program, a complete package of ideas and material tested in the Wilmington campaign.

(More news on page 26)

NJBSJD Chairman Resigns Post

(Continued from page 21)

resignation, effective December 31, was accepted on October 3, according to the council. The council states that Mr. Mitchell gave as his reason for resigning the fact that some associations would not abide by the board's decisions and that others were attempting to render decisions in jurisdictional matters.

NOW! There is ONE BEST WAY to Humidify!

Introducing... the completely
**NEW AUTO FLO
MODEL 40
POWER HUMIDIFIER**

- All Steel Cabinet
- Mounts Flush on Plenum or Duct
- No Drain Connections Needed
- Precise Automatic Humidity Control
- Easy-Access Service Door
- Special Evaporator Filter Removes Air-Borne Bacteria
- Entire Pump and Control Assembly Isolated for Easy Servicing
- Evaporates up to 6.4 Lbs. of Pure Water Vapor per hour



MODEL 40-SW POWER HUMIDIFIER, is recommended for areas with very hard or domestically softened water. This unit has a solenoid controlled water supply and continuous drain which will flush away most mineral deposits.

Auto flo CORPORATION
DETROIT 39, MICHIGAN

IN CANADA: 1305 WINDSOR, WINDSOR, ONTARIO

Auto Flo Corporation
12085 Dixie Street, Detroit 39, Michigan

AA-11

Please rush complete information

- ☐ NEW Auto-Flo MODEL 40 POWER HUMIDIFIERS ☐ Automatic HUMIDIFIERS
☐ FUEL OIL FILTERS ☐ AIR FILTERS

NAME _____

COMPANY _____

ADDRESS _____

CITY _____

ZONE _____

STATE _____

NEW! Just a few Honeywell truck can handle up to



Now just a few controls instead of hundreds. Honeywell engineers selected and re-engineered 170 basic controls that do the job of 18,000 or more! Just a handful of TRADELINE Controls on your truck normally take care of up to 93% of all your service needs.

TRADELINE* controls on your 93% of your service needs

**Eliminates extra trips for
right controls...means more
money for you...better
service to your customers**

Now Honeywell introduces a revolutionary new approach to eliminate the confusion in controls stocking. It's TRADELINE—the new way to streamline your control stock.

Honeywell engineers selected and re-engineered 170 controls that will do the job of 18,000. And do the job right! Since TRADELINE Controls will handle up to 93% of all common control installations, you just carry a few controls instead of hundreds.

With TRADELINE Controls you can now afford to carry the right controls on your truck and eliminate extra trips and wholesaler pickups for controls.

And, you can always depend on your wholesaler to have the right control if he stocks TRADELINE.

The savings in time alone, by eliminating unnecessary extra trips for the right control, will help put you in business with your initial stock of TRADELINE Controls. From there on, you're making money, plus giving your customers faster, more efficient service.

PROVED IN TWO-YEAR TEST!

The TRADELINE idea of a few controls replacing hundreds has been tested for two years in the Southwest with hundreds of dealers. It's a proved way to increase your business.



FIND THE RIGHT CONTROL IN POCKET GUIDE

A new, pocket-sized cross reference guide tells you instantly which basic TRADELINE Control is needed. It's available from your wholesaler.

Call your wholesaler today and get him to assemble the proper TRADELINE Controls for your needs.

* TRADEMARK

**THE NEW WAY TO
STREAMLINE WHOLESALERS'
AND DEALERS' CONTROL STOCK**

NEW, TOUGH STYROFOAM PACKAGE!



New idea in packaging. The Honeywell Round, V80 and V81 gas valves, pilotburners, thermocouples and the Y400 Powerpile package are among the first TRADELINE Controls to be nestled in handsome Styrofoam containers. Handy, neat, controls can't be damaged on truck.



HONEYWELL
TRADELINE
CONTROLS

HONEYWELL INTERNATIONAL—Sales and service offices in all principal cities of the free world. Manufacturing in the United States, United Kingdom, Canada, Netherlands, Germany, France, Japan.

Urges Stepped-Up Apprentice Programs

WASHINGTON, D. C. — Apprenticeship and its great importance to the future of the United States and its labor force was the subject of a talk given by Assistant Secretary of Labor Jerry R. Holleman at a recent meeting of the Washington Building Congress. Mr. Holleman pointed out that during this decade, the number of male workers is expected to increase by 15 percent, while the percentage of craftsmen needed in the skilled trades must increase by about 25 percent.

Need Adaptable Workers

Discussing the growing demand for skilled workers, he explained that today's employer "prefers a worker with a sound basic education. He wants someone who can be retrained without too much difficulty for the job changes he is being forced to make with great rapidity to raise production and meet competition. Workers must be able to make changes while in the mainstream of their work career.

"This new qualification for steady employment has not been too difficult for the average, highly skilled craftsman in the United States, especially for those trained through our formal apprentice programs. Apprenticeship is by far the best way to get desirable workers for our technological age. And we have a real problem facing us today, in this respect.

"By 1970 we will need about 11 million craftsmen in the United States. We had about 8½ million last year, but statistics

show that the labor force will lose 2½ million in this decade from natural causes such as death and retirement. That leaves the United States with the job of actually training 5 million new highly skilled men by 1970.

Where Will We Get Them?

"Unfortunately, the people responsible in management and labor for apprenticeship programs — the people who should be most concerned about an adequate supply of skilled people — are not meeting their responsibility. The sum total of our apprenticeship efforts is producing less than 40,000 apprenticeship completions a year — which isn't even enough to cover the numbers we lose from the trades. We need at least 230,000 a year to meet our goal of 11 million skilled workers. We need them through apprenticeship programs because these programs provide the truly skilled worker.

"This means cooperation and a better understanding of our manpower and economic goals. What has been done in the past will not be good enough for the future.

Must Plan Ahead

"To management I say you must replace the fiscal year outlook with a five-year, possibly a 10-year outlook. You must keep looking ahead and take on more apprentices, though your fiscal outlook might not indicate the need for more workers next week or next month.

(Continued on page 30)

Fair Bidding Programs On Increase

WASHINGTON, D. C. — The Council of Mechanical Specialty Contracting Industries, Inc., reports that a fair bidding practice survey has recently been completed showing that today 33 fair bidding practice programs exist and are being followed in as many major areas of the country. Last year at this time, CMSCI states, there were only 20 such programs. The National Joint Cooperative Committee of the CMSCI-Associated General Contractors has developed a guide for fair bidding procedure, according to the council, and, through its constituent groups, has been advocating this cooperative approach to correcting improper industry practices such as bid peddling and bid shopping.

NFPA Revises Standards 90-A and 90-B

ELGIN, ILL. — A number of changes in the National Fire Protection Association's Standards 90-A and 90-B are reported in the Sheet Metal and Air Conditioning Contractors' National Association's News Bulletin No. 128. SMACNA points out that holders of the two NFPA pamphlets, which were issued in 1955, may bring those standards up to date by inserting the changes outlined in the SMACNA bulletin.

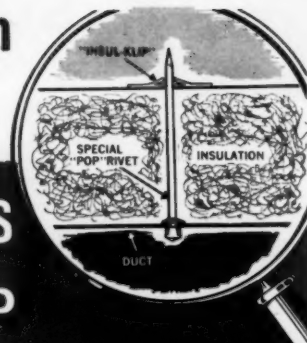
Among the revisions in pamphlet 90-A are the following:

Section 114 (b) has been re-

(Continued on page 30)

Fastening Fiberglas Insulation to Large-Size Ducts?

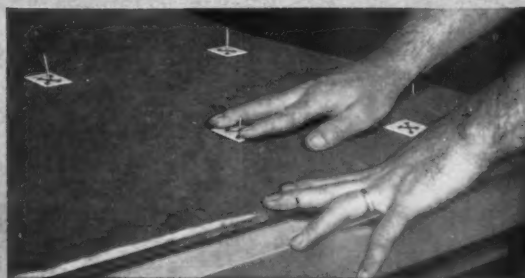
SAVE TIME, MONEY and MESS
WITH THIS **NEW "POP" RIVET METHOD**
JUST 4 QUICK EASY STEPS:



1 The Fiberglas insulation is laid on the flat of the duct, and a series of holes is drilled through both the insulation and the metal duct.



2 Special "POP" Rivets are positioned in each hole and set with hand tool. Special mandrels do not break off in the setting operation.



3 "Insul-Klips" are placed by hand over the protruding rivet mandrel. Pointed tips of the mandrels make this operation quick and easy.



4 If necessary, excess rivet mandrel is nipped off, not flush with the surface, but with about $\frac{1}{4}$ " of protrusion above the surface of the "Insul-Klip."

Reduces Installation Costs up to 50%!

Compared with the old-fashioned way, this new "POP" Rivet method produces labor and material savings up to 50%! The old method is slow and extremely messy. In addition to cutting costs, the "POP" Rivet method does a better job by lessening the possibility of the insulation dropping off and clogging the duct.

The "POP" Rivets used in this installation method are specially designed for this use and are equipped with a mandrel that does not break after the rivet has been set. Regular "POP" Rivets with the usual break-off setting mandrels are recommended for general duct and sheet metal work . . . wherever limited access calls for blind rivets that can be set with speed, ease and economy!

Send today for complete information . . . and test this fast, economical new method on your own jobs with this special introductory KLIP-KIT. Contains 400 Insul-Klips, 400 special rivets in two different mandrel lengths, for insulation up to 2" in thickness. Can be set with your regular "POP" Hand Setting Tool. KLIP-KIT is available F.O.B. Shelton, Connecticut, for only \$9.90, or through your local distributor.

Genuine "POP" Rivets are available through a large network of distributors throughout the country.



FASTENER DIVISION • UNITED SHOE MACHINERY CORPORATION
2130 River Road, Shelton, Connecticut, U.S.A.



SOFTITE BY WHEELING

COP-R-LOY[®]



"First choice by far!"

—That's what they're saying all over America about Wheeling **sofTITE** Galvanized Sheets! For **sofTITE** has everything sheet metal men want in a galvanized sheet. Here's why:

1. **sofTITE** sheets work easier because they are soft and ductile.
2. **sofTITE**'s galvanized coating is applied so tightly that it actually becomes a part of the steel base... can't flake or peel no matter how you twist or torture it.
3. **sofTITE**, made of famed Cop-R-Loy, lasts longer... will give more years of extra service for your customer's dollar.

Get the full facts on dependable, easy-to-work **sofTITE** Galvanized Cop-R-Loy Steel Sheets from your Wheeling man this week. Or write directly to our nearest sales office.



**IT'S WHEELING
STEEL!**



WHEELING STEEL CORPORATION

DISTRICT OFFICES: Cincinnati Houston St. Louis
Atlanta Buffalo Cleveland New York San Francisco
Boston Chicago Detroit Philadelphia Wheeling

WHEELING CORRUGATING COMPANY *Subsidiary*

Atlanta	Columbus	Louisville	New York
Boston	Detroit	Martins Ferry	Philadelphia
Buffalo	Houston	Minneapolis	Richmond
Chicago	Kansas City	New Orleans	St. Louis

How NFPA Revisions Affect Warm Air Heating Dealer

(Continued from page 26)

vised to read: "Linings, including vapor barriers, coverings and insulations shall have a flame-spread rating not over 25 without evidence of continued progressive combustion and with a smoke developed rating not higher than 50. If the linings and coverings, including vapor barriers and insulations, are to be applied with adhesives, they shall be tested as applied with such adhesives, or the adhesives used shall have a flame-spread rating not over 25 and a smoke developed rating not higher than 50."

In Section 132, the next to the last sentence has been deleted so that this paragraph now reads: "Fire dampers, installed in the system, as required at other than fire wall openings, shall be No. 16 U.S. gage steel in ducts up to 18 in. in diameter or greatest width, No. 12 U.S. gage on diameters up to 36 in. or greatest width and No. 7 U.S. gage on ducts above 36 in. in diameter or greatest width. Louvered type fire dampers as shown in Fig. 4 may be constructed of No. 18 U.S. gage steel, provided the individual louvers are not over 6 in. in width and are stiffened by formed edges. Fire dampers listed by a nationally recognized testing laboratory may be used in accordance with the conditions of listing."

Section 134 has been revised to include a requirement that fire dampers be provided on each opening through the wall of a required enclosure of a vertical opening.

In Section 151 (a), a sentence has been added so that it now

reads: "Air filters shall be of approved types that will not burn freely or emit large volumes of smoke or other objectionable products of combustion when attacked by flames. An evaporative cooler containing a combustible filter and water evaporation medium, such as excelsior, shall not be used."

The most important change in pamphlet 90-B, according to SMACNA, is that the required clearance above and at the sides of the bonnet and plenum of listed automatic forced air or gravity warm air systems with a 250 F temperature limit control has been increased from 1 to 2 inches.

Social Security Taxes To Be Increased

(Continued from page 22)

proved this year. The tax increases in 1963, 1966 and 1968 will be required to pay for the benefits provided by earlier amendments.

The chamber points out that by 1968, the maximum tax will be \$222 from each employee, plus an equal amount from each employer.

According to the *Washington Report*, published by the national chamber, "A new drive will be made next year to rewrite the original purposes of Social Security and expand its scope and costs greatly by including health care service benefits. Even the most conservative estimates by sponsors concede that this proposal would cost more than a billion dollars a year in new taxes."

Architects, Engineers, General Contractors Approve 'Chicago Plan'

WASHINGTON, D. C. — The Chicago chapters of the American Institute of Architects, the Associated General Contractors, and the Consulting Engineers Council have recently approved the "New Chicago Plan for Separate Bids," according to the Council of Mechanical Specialty Contracting Industries, Inc. This plan has been under development under the sponsorship of the Coordinating Committee of the Mechanical Specialty Contractors in Chicago (electrical, heating, air conditioning, plumbing, ventilating) and involves the taking of separate bids by the architect or engineer on heating, plumbing, electrical, air conditioning and ventilating work and the assignment of the successful specialty contractor to the successful general contractor on the other phases of the work for the purpose of coordinating the job. The general contractor would be obligated to pay the price of the

(Continued on page 32)

Cites Need for More Apprentices Programs

(Continued from page 26)

"Our surveys indicate that more than 80 percent of establishments that should have apprentice programs do not.

"The productive potential of this country, growing by leaps and bounds, can absorb skilled men readily in the few short years ahead. I am of the opinion that many of the terms of apprenticeship are too long. In certain cases, four and five year

(Continued on page 32)

MEMO

Another example of how Revere Copper and Brass Incorporated promotes wider use of Sheet Copper for Building Construction. This advertisement appeared in American Builder.



"With the price of copper down, gutters made of wood are out of the picture in the homes we build today,"

Says NICHOLAS E. FIGLIOLA, President
MACY PARK CONSTRUCTION COMPANY, HARRISON, N. Y.



Here you see John Jarno, Co-Owner, RYE ROOFING & SHEET METAL CO., Rye, N.Y., installing one of the 2" x 3" Revere Copper Leaders on this new home being built by Macy Park Constr. Co., Inc. Revere Copper was also used for gutters and flashing.

"We've always preferred copper for the gutters in our homes. Now, with such a small spread between the cost of installing a copper gutter and one made of wood, we wouldn't feel as though we were giving the buyer the best value for his money unless we used copper. What's more, copper lasts longer, and you don't have to keep painting it every few years as you do with wood.

"It has also been our experience that copper gutters, leaders and flashing mean a great deal in convincing the prospective home owner that he is getting the most for his money."

At today's prices, take a new look at copper, the preferred material for gutters, leaders and flashing. You, too, will find it pays to use copper on your homes. To make certain of its quality, specify Revere... oldest name in copper in the U.S.A.

REVERE
COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801

Executive Offices: 230 Park Ave., New York 17, N. Y.
Branches: New York, N.Y.; Baltimore, Md.; Chicago and Clinton, Ill.;
Detroit, Mich.; Los Angeles, Riverside and Santa Ana, Calif.; New
Bedford and Plymouth, Mass.; Brooklyn, N. Y.; Newport, Ark.;
Ft. Calhoun, Neb. Sales Offices in Principal Cities.

Distributors Everywhere





- ✓ FULL MARK-UP
- ✓ ADDED SALES
- ✓ LOW INVENTORY
- ✓ COMPLETE LINE

Walton Humidifiers are the full profit line with exclusive distribution assuring full mark-up . . . more profit in most instances than from many highly competitive heating and ventilating products and installations.

A volume market exists in your area for top quality humidifiers and Walton has more than 25 years of humidification manufacturing experience to attest its leadership and quality.

There Is No Reason To Sell Less Than The BEST



Residential Furnace Models



Residential Portable Models

Walton

Industrial Duct Types

Industrial Space Types



27 MODELS with rated outputs from 2½ to 24 gallons daily. Retailing from \$49.95

Dealers! Write Today for Free Information

Walton

LABORATORIES, INC.

1186 Grove Street, Irvington 11, N. J.
Chicago Office: 548 W. Washington Blvd.

Please send **FREE** information on Walton's program for building humidification sales plus the name of the nearest Walton Distributor. Distributor Inquiries Welcome.

Name _____
Company _____
Position _____
Address _____
City _____ State _____

WHAT'S HAPPENING...

Why More Apprentice Programs Are Needed

(Continued from page 30)

apprenticeships seem to me a waste of time.

"Perhaps you wonder if we will really need all the extra workers I have been talking about. Let's consider the Greater Washington area as an indicator for building construction alone in the years ahead. Permits for new construction this year, excluding Federal construction contracts, have been issued for a total valuation of more than \$200,000,000 for over 6000 buildings. Authorizations for school buildings in the area have a total value of nearly \$13 million for 12 new schools and 16 additions. The Federal Government currently occupies something like 31 million square feet of office space, nearly half of which is classified as temporary or obsolete. The administration is formulating plans to do something about this situation, and you can assume with some confidence that new construction will be one of the methods of alleviating the problem. I don't have to spell out what this means in terms of future jobs."

Approve 'Chicago Plan' For Separate Bids

(Continued from page 30)

assigned mechanical specialty contractor's successful bids. The job then would be handled under a single contract. This is the first time that such a sweeping reform in bidding procedure has been accepted by all the major elements in construction, according to CMSCI.



USA made of USA materials



"You can't afford to cut corners on quality if you've got a good reputation to maintain. That's why I specify good old USA brand names like Southern Screws. I can always rely on Southern's consistent top quality as well as quick service from alert distributors."

Southern has Types 1, 23, 25, F and BF Thread Cutting Screws, in addition to Types A, B, C, and BP Tapping Screws. For every sheet metal fastening job, call your Southern Screw distributor for fast service on fine fasteners. Or write Southern Screw Company, P. O. Box 1360, Statesville, N. C.



Types A, B, C, & BP Tapping Screws •
Types 1, 23, 25, F & BF Thread Cutting
Screws • Machine Screws & Nuts • Stove
Bolts • Drive Screws • Carriage Bolts
Continuous Threaded Studs • Wood
Screws • Hanger Bolts
Manufacturing and Main Stock in
Statesville, North Carolina

Warehouses:
New York • Chicago • Dallas • Los Angeles



OPERATES
IN ANY POSITION!

REQUIRES
NO LEVELING!

The ROBERTSHAW *élégante* wall thermostat with the new Best switch...operates in any position, requires no leveling...this revolutionary magnetic switch operates longer, better....switch contacts permanently sealed in glass to protect against corrosion and linting.



For more information, contact: ROBERTSHAW-FULTON CONTROLS COMPANY
GRAYSON CONTROLS DIVISION • LONG BEACH, CALIFORNIA

Robertshaw



RT 100
HEATING ONLY



RT 400
HEATING & COOLING

Here's how the LARGEST BUYER OF STAINLESS can solve your buying problems... save you money

If you think of Ryerson as a *supplier* of stainless steel, you're only partly right. Because Ryerson is also a buyer of stainless—the nation's largest buyer—and this fact holds important advantages for you.

If your usual requirement can be met from stock, then Ryerson offers you these problem-solving advantages:

1. As the nation's largest buyer of stainless, we, of course, have the nation's largest stocks with 2351 different types and sizes available for immediate shipment.
2. In our biggest-buyer relationship with the mills, we have ready access to the knowledge and skill of leading producers. So this help is readily available to you through Ryerson, coupled with the practical application experience of our own stainless specialists.

If you are generally a direct mill buyer here's how you gain:

1. At no extra cost you can place your mill orders through Ryerson.
2. You deal conveniently with local Ryerson men who take full responsibility for meeting your requirements.
3. As the largest buyer, we have a knowledge of sources and position with them that few other buyers can command. You eliminate source searching, paperwork, expediting, etc., when you concentrate purchases on one order to Ryerson.

So whatever the size of your requirement, whatever the specification, you can count on Ryerson for fast, dependable delivery. And tight Ryerson controls assure consistent high quality of all shipments. When you need stainless, call our nearest plant.



STEEL • ALUMINUM • PLASTICS • METALWORKING MACHINERY

Regular Safety Programs Earn Good Dividends

NOT LONG AGO we were interviewing a dealer-contractor when the telephone rang. The call came from one of the company's servicemen. It seems that the serviceman had skinned his shin while entering a basement on a repair call. He wanted to know what doctor to report to, and if someone would take over the rest of his calls for the day.

Dealer-contractors all recognize this situation as one they must occasionally cope with. There are several expenses involved here besides the cost of insurance: lost time for at least the rest of the day; transportation costs in moving another serviceman to cover the extra calls; interruption in scheduled work; the time that will be spent repeating the story next morning for the benefit of all who will listen; and the completion of accident forms, records and additional trips to the doctor for observations.

This particular accident could have been avoided if the serviceman had been trained to carry a flashlight with good batteries. The prevention of accidents lies in a continuous training program. Employees must be periodically reminded of the things that can happen and the steps they must take to prevent them.

Dealer-contractors with whom we have checked and whose accident rate is low tell us they hold safety meetings as often as once a week — sometimes for only 15 minutes — but safety is stressed, and stressed hard.

Sometimes, according to these dealer-contractors, they hold tool and equipment inspection without notice, and insist that defective equipment be replaced or effectively repaired at company expense. Followup notes are made to see that these instructions are carried out.

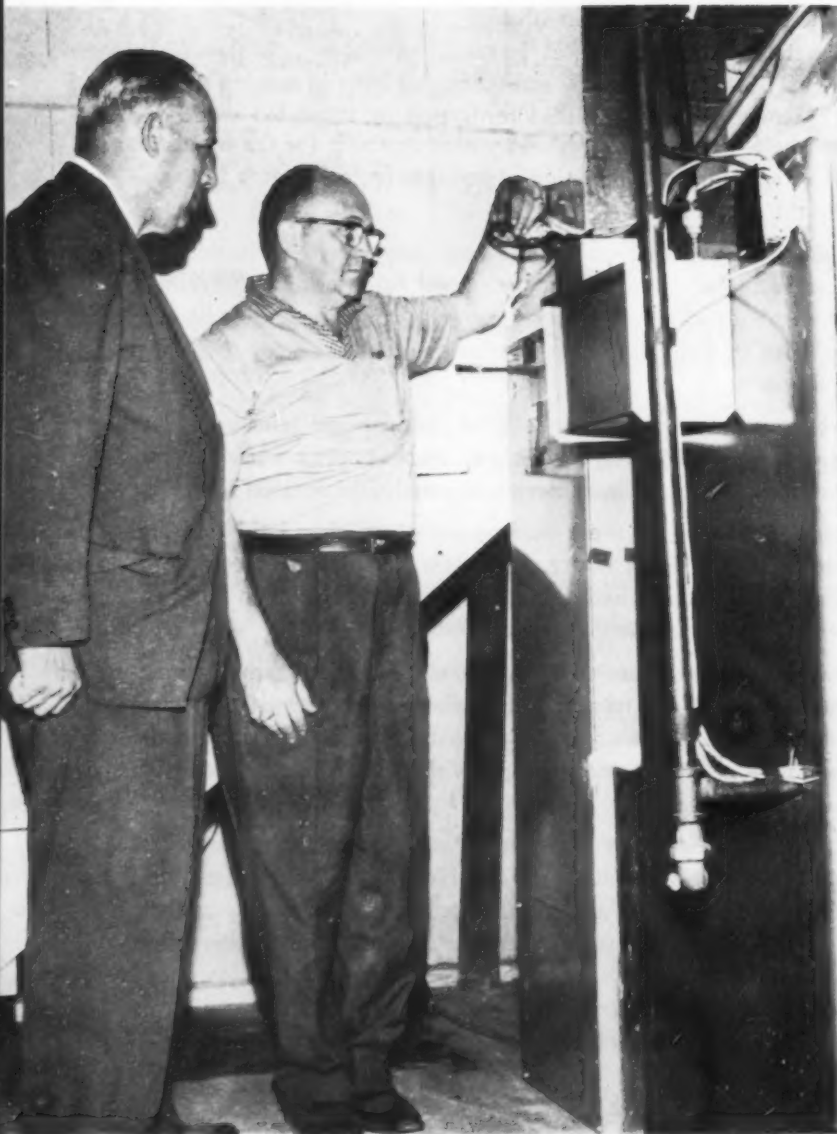
The best safety records are enjoyed by companies that encourage employee suggestions for safety measures, and who actively use safety posters conspicuously placed as constant reminders. Safety can be practiced in the shop, on the job, and on the road. Programs that vary the emphasis have proven to get best results.

There are many safety aids available to help reduce the hidden costs that add to overhead costs. One group, the New York State Sheet Metal Contractors' Association, enjoys about a 45 percent rebate each year on their insurance premiums because they actively pursue an accident prevention program. Individual dealer-contractors, besides saving on direct overhead expense, can also save on their annual insurance premiums if they can lower the number of claims they must file.



How Effective is Your

When used to support your sales promotion program, the news release not only gives the company identity in the field it serves, but also brings inquiries from new prospects



"USE THE USER" has proven to be an effective sales theme for many dealer-contractors, but Arthur Liles, Western Gas Heating and Air Conditioning Co., Birmingham, Ala., has added to this maxim. It now reads, "Use the User and Use the Newspapers Too."

The combining of these two sales promotion tools — satisfied customers and newspapers — has been responsible for a number of non-competitive sales, has helped in identifying the company's position in the field it serves, and has been fundamental in reaching a \$150,000 annual volume.

The newspaper publicity consists of news stories published by a local newspaper on its industrial page.

Dual Benefits of Publicity

Usually the article concerns some installation made by the company. This not only gives the company publicity, but also stimulates pride on the part of the customer whose heating or air conditioning plant is featured. He enjoys the compliments paid by friends and neighbors.

The news releases are based

TYPICAL OF ILLUSTRATION used in newspaper articles is this photograph which illustrates the actual job being described

Newspaper Publicity?

around a single feature that is worked in as a component of the overall comfort provided by a year 'round air conditioning system, either for a new house or the modernization of an existing heating system. Each news release is accompanied by a 9 x 12 glossy photograph which permits the editor to provide an illustration with the article.

One recent news release used a photograph of a lady customer and Bill Robbins, one of Western Gas Heating Co.'s sales engineers, going over the new year 'round air conditioning equipment; the salesman is explaining how the con-

densate pump handles the water removed from the air during the cooling season. The text of the article explains the equipment and its application to a well-designed air conditioning system.

Company Skill Brought Out

The company name is worked into the news release as often as is practical, without being too commercial in tone. The extent of the company's services and its facilities are also touched upon.

Concerning the extent of the company's facilities, one phase of operation is played up in each

article. One time it may be the 24-hour service operation. Another time it may be the large inventory carried, or the size and skill of the installation staff ready to serve Western Gas Heating Co.'s customers.

Another recent news release carried the story of electrostatic air cleaning equipment, its effectiveness in removing dirt, dust and bacteria. An accompanying photograph showed a sales engineer instructing the customer in its operation and maintenance.

A third release carried a list of six customers (representing each major segment of Birmingham's

TABLE TOP MODEL projector aids Arthur Liles (left) to explain to a prospect the work that is needed to provide a well-designed year 'round air conditioning system



continued . . .

Using the News Release As a Sales Promotion Tool

growing housing areas), all of whom had recently installed year 'round air conditioning similar to that illustrated (photo represented a typical neat installation). The news item also carried the photographs of Western Gas Heating's owner, Arthur Liles, and one of its sales engineers, Bill Robbins.

Variety is added to the news releases by occasionally producing a release that has a different appeal, that of technical or mechanical interest. Such an article describes the technique of fabricating ductwork that is airtight, securely supported and designed to match the requirements of each job. Other subjects that have proven of interest to the technically minded prospect cover air filtration, air sterilization, humidification, equipment capacity, etc.

Inquiries from prospects lead to setting an appointment that will give the salesman time to ade-

quately explain the features of a well-designed system. To help in this explanation, a 9 x 12 in. portable projector is used. Photographs used for illustrations are taken of actual installations by the sales engineers. A photograph album is also used to show typical

homes that have been air conditioned by the company.

This rounded out sales promotion program and follow-up helps to keep costs per sale low, and also supports the other sales promotion programs conducted by the company.

Tips on Preparing a News Release

IN PREPARING the news release for the industrial page of your local newspaper, publicize services, facilities, features, etc., of your company which are most apt to bring inquiries from prospects.

- For subject matter, choose a recent installation handled by your company; this gives your company publicity, and also stimulates pride on the part of the customer whose installation is featured.

- Provide the newspaper

with illustrations at the same time you send in your release.

- Work the company name into the release as often as is practical.

- Touch upon company services and facilities; however, play-up only one phase of operation in each article.

- Use a variety of appeals. For example, one article might be directed to those interested in the technical or mechanical aspect of an installation.

Ghost Families Working for Science

SINCE JUNE 1959, two "ghost" families have been used to provide data on heat losses in residences. The research project is located in St. Paul, Minn. and has as its objective the verification of calculated versus actual heat losses, the effect of solar radiation and internal heat on the heat demand of the buildings, performance of insulation, comfort levels, heat requirements and heat losses from basements, value of insulating sheathing and other factors influencing total heat loss.

The ghost families are employed to provide controlled conditions, simulating actual occupancy by an average family of four persons. The living habits are automatically controlled by an electronic device which turns on and off all major appliances and certain small heaters that simulated body heat equal to that given off by actual persons en-

gaged in various activities common to normal living.

The test houses are one-story buildings, 1100 sq ft in size with a crawl space under a portion of the house and a basement under the remainder. Electricity is used as the source for adding heat as this fuel can be very closely measured. An outside weather station records wind direction, velocity, air temperature, and solar radiation.

Current evaluation of data obtained shows that actual energy used for heating is 29.3 percent less than the calculated heat loss based upon standard methods of computation.

The portion of the study dealing with solar radiation showed that on clear, sunny days, the total heat demand was reduced about 10 percent as compared to cloudy, overcast days.

By Ralph Taylor
General Controls Co.



How Self-Generating Power Circuits Are Serviced

**Critical resistance of thermocouple
generating systems requires a step by step
procedure to locate
contributing factors to a malfunctioning circuit**

THE BASIC PRINCIPLE of generating electric power by applying heat to a thermocouple is recognized by all trained servicemen. But service calls that are due to the equipment's failure to perform as designed can often be traced to a lack of periodic maintenance. Thermocouples are sometimes connected in series, in the form of a multiple pilot generator, where current generated by each thermocouple is added to that of other thermocouples to develop a value of from 250 to 700 MV. This small amount of electricity may be compared to the power in a small flashlight battery (1½ volt direct current) which has about double the voltage of some pilot generators.

The components of a millivolt control system (Fig. 1) are:

- 1) The pilot generator — the power source from 250 to 700 MV with an open circuit reading.
- 2) The thermostat — a switch in the circuit.
- 3) The gas line valve — the power load to be handled by the pilot generator system.
- 4) The circuit wiring — conductors for millivolt electricity.

Need Millivolt Meter

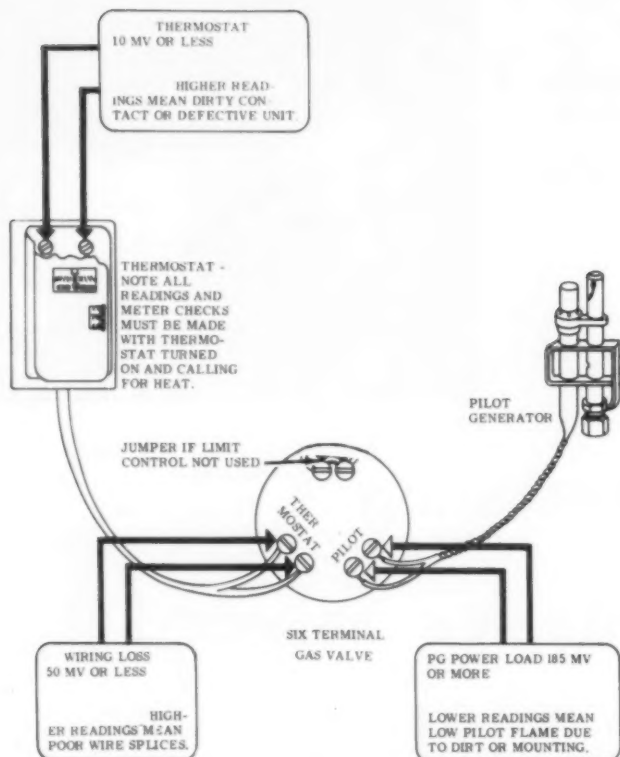
Checking out a pilot generator system requires a millivolt meter and a checkout sheet or service manual. The procedure recommended is as follows:

- 1) *Thermostat check*

Since the thermostat is the only part of this system that is easily accessible, it is common practice to start there.

a) With the millivolt meter check at the thermostat to see if the generator is developing the required power. This is an "open circuit" reading with the thermostat adjusted for a setting below room temperature. The thermostat contacts must be open for this test, which is to establish that the pilot is burning and generating power. This test does not establish the performance of the pilot generator or the quality of the wiring.

b) Turn the thermostat until the contacts are made (80-85 F). Touch the millivolt meter



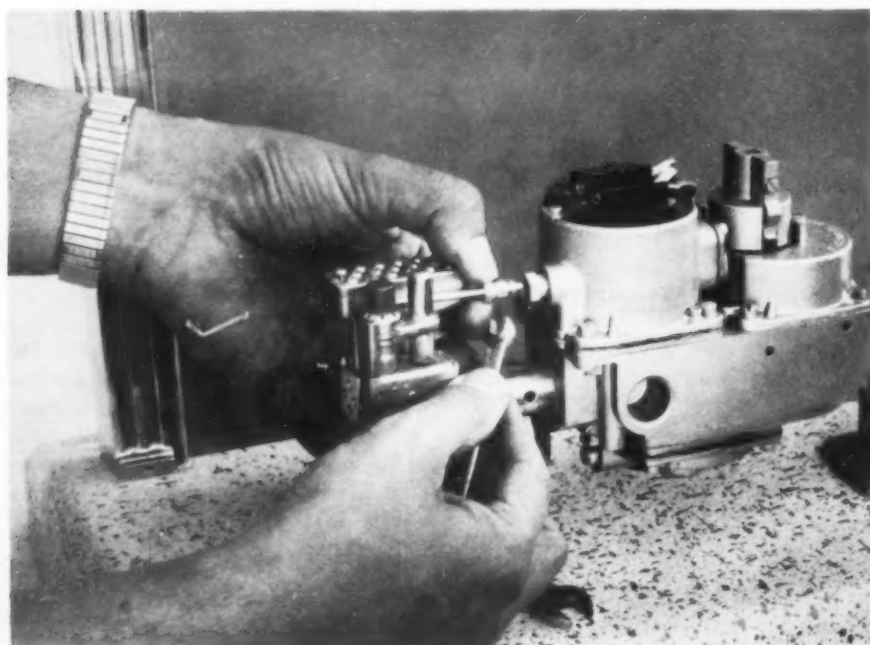
1 MILLIVOLT METER readings that should be found when testing a self-generating control circuit. Possible causes for failure to achieve anticipated reading are listed adjacent to related terminals

Service Clinic

continued . . .

probes to the two thermostat wire terminals. A reading of 5-10 MV indicates a good thermostat. A reading of zero MV may indicate a breakdown at the generator or a loose screw, splice, or connection. If a zero reading is obtained, check connections at terminals. If the millivolt meter reading is high, check the thermostat to see if it contains a heat anticipator.

If a heat anticipator is used, check it against the recommended combination of thermostat, anticipator, and generator. It is possible that the incorrect anticipator is being used. If the correct



2 CLOGGED or burned bleed tubes must be removed and cleaned before a main gas valve will perform its proper function.

anticipator is being used, clean the thermostat terminals and contacts.

c) If meter reading indicates satisfactory performance of the thermostat, turn the dial to a higher setting to continue to call for heat throughout the remainder of the test.

Start Check at Valve

The next step in diagnosing any faulty operation is to check the equipment at the furnace. Start with the gas line valve.

2) Checking the main gas valve

a) Check wiring between the thermostat and pilot generator; take millivolt meter readings of the thermostat wiring with the thermostat contacts closed. This reading reflects resistance of the thermostat, plus the resistance of the connecting wiring.

A reading of approximately 50 MV is usually satisfactory. (Refer to service check out sheet or service manual for specific readings of various makes.) A

high reading may mean a poor splice in the thermostat wiring.

3) Checking the pilot generator

a) Check the resistance of the pilot generator wiring with the thermostat contacts closed. This millivolt meter reading should be 185 MV or more — the higher, the better. If lower readings are found, clean the pilot orifice. If pilot flame appears to be correct, check generator location in relation to the main burner flame. Be sure that the main burner flame does not envelope the generator or impinge on it. If the above conditions are found, it is possible that the generator has been burned out.

If satisfactory generator readings are found, loosen thermostat wire to see if valve "clicks" each time the wire is touched against the terminal to which it is normally attached.

b) If a click is heard, but the main valve does not open, loosen the bleed tube (Fig. 2) and blow through it. If it is clogged or burned in any way, clean and

replace it so that its tip is adjacent to pilot generator, but not in the flame.

c) If after checking all of the preceding points, the valve still will not open, it should be replaced.

Rely on Catalog Data

Many of the controls now being manufactured are of the combination type. In a millivolt system, any of the new controls would be checked in a manner similar to that described here. Valves of a different size or shape are tested in the same manner. If there is any doubt that a valve may be other than a millivolt type, it can be properly identified by a catalog number. Write down the numbers and check them against a catalog or instruction sheet for positive identification.

This paper was presented by General Controls Co. at a membership meeting of the Institute of Heating and Air Conditioning Industries in Los Angeles.

Furnaces Match School Requirements

INDIVIDUAL FURNACES have been installed to serve the new 20 classroom Dry Hollow Elementary School at The Dalles, Oregon. In addition to separate furnaces for each classroom, horizontal and duct furnaces are used in the combination gymnasium-auditorium, cafeteria, kitchen, dressing-rooms and administrative areas.

Highboy furnaces were used for each classroom and are located in furnace rooms placed outside, but adjacent to each area served. The furnace rooms are placed opposite the partition wall for two classrooms, located under extended roof overhangs and weather protected. The furnace rooms have been built large enough to accommodate two furnaces, one for each room served.

Ductwork supplies heated air to an overhead system, with one central return opening located near the corner of the room adjacent to the furnace. The short return duct contains a damper to regulate the quantity of air returned to the furnace for recirculation.

Positive exhaust is achieved by individual roof ventilators. Outside air — 1200 cfm — is supplied each classroom at all times during the period heat is required by the thermostat. There is one thermo-

stat for each room. Automatic dampers wired to a separate blower circuit are used to provide 100 percent outside air on days when heat is not required.

All lavatories, dressing rooms and kitchen air is exhausted through ventilators located on the roof.

The school is of frame construction built on a concrete slab floor. Windows are of the fixed aluminum sash type. Insulation, both in the ceiling and walls is 2 in. blankets. Design temperature is minus 10 F with heat loss calculated at 47,000 Btuh for corner classrooms and 37,000 Btuh for inside classrooms. Cost of the entire 20 classroom school was \$494,663, at an average cost of \$12.10 per square foot for the 40,881 sq ft building.

The use of residential size furnaces for heating schools is growing in favoritism throughout the country with school boards because of the economy of initial operating and maintenance costs.

Other advantages offered by forced warm air heating systems include quick warmup of classrooms in the morning without the need for special attention by a trained heating attendant (or building engineer), no lingering heat lag and adequate introduction of tempered fresh air at all times.

How to Make Your Sales Demonstration Appealing

... in the home and on the showroom floor by
directing your proposal toward
the prospect's senses of sight and hearing

SOME YEARS AGO, a damaging rumor threatened the existence of the Philadelphia Evening Bulletin. The newspaper, it was whispered, was going downhill. Readers were deserting the Bulletin because it carried too much advertising, not enough news.

Even as advertisers began to talk about cancellations, the editorial board of the newspaper called an emergency meeting. Something had to be done—quickly.

But what? The answer came in an inspired flash of insight.

The Bulletin excerpted all the reading matter from one of its regular editions—exclusive of advertisements—and published it as a 300 page book called "One Day." Copies of the volume were sent to advertisers.

Black on white and between hard covers, the Bulletin proved its point beyond a shadow of a doubt. It proved that it offered its readers as much news and features, daily, as would occupy the pages of a book costing several dollars, and at a cost of only a few cents.

The rumor died in its tracks. Why? Because the Bulletin knew that the swiftest way to get its message across was to dramatize it. It could have issued vehement denials or cited impressive figures, but words and numbers are often distrusted and can be dismissed. On the other hand, "Seeing is believing."

The moral here for the salesman is: the more dramatic you make a demonstration, the more convincing your sales message becomes. A prospect is more inclined to believe what he sees with his own eyes or feels with his own hands.

Remove Skepticism

Many people are naturally skeptical. They have a built-in "disbeliever" that automatically discounts the value or importance of anything novel. As a salesman, you are frequently the bearer of precisely what they are conditioned to resist—news.

Demonstration helps you resolve this "conflict of interest"—in your favor. It enables you to prove that what you claim for your product or service is true. It makes the benefits you have to offer vivid so that the desire to own them is heightened. It whets the customer's appetite. It lights a bonfire under him. It spurs him to action.

It *should* do all this. Often, it doesn't. But it can providing that it's given a dramatic shot in the arm.

Every demonstration is an approach to showmanship. However, you can demonstrate your product prosaically (and hope that your prospect has an active imagination) or, on the other hand, you can apply reasonable theatricals to get your message across with maximum impact.

At your disposal are four eager allies, your prospect's eyes, ears, hands and nose. Without exception, effective demonstrations sell the senses as well as the mind. *To Make Him See It*—As the first step in a prepared demonstration, keep in mind that everybody enjoys a good show. We like to see action happening, in action. Indeed, psychologists have found that over 85 percent of all the things we ever learn are learned through the eyes.

The salesman who trains himself to think in terms of "What can I show my prospect that will jolt his interest?" is well on his way toward eliminating one of his greatest enemies — customer inertia.

Use a Simple Demonstration

Consider, for a moment, a young engaged couple who visited a china shop. The groom-to-be never before had any interest in china. He wandered non-committally about the store, looking "but seeing not." His fiancée obviously knew a great deal more about china, but the salesman correctly assumed that since the man would be paying, he might want some assurances about the quality of the product.

The salesman decided on a simple demonstration. He took a cup from an expensive set of Wedgwood bone china, placed it on the floor and stood on it. The fragile-

looking cup supported his weight. He picked up the cup and handed it to the young man without a word. This visual proof of bone china's strength struck home. The sale was made.

That salesman knew his wares and how to prove superior quality to a prospect who knew very little about the product. His dramatic demonstration seized the young man's imagination and kindled interest where it didn't exist before. How? Through the eyes.

"People can't 'pooh-pooh' what they see with their own eyes," says an insulation salesman who waited for the first snowstorm of the year before revisiting a particularly obstinate prospect. He wasted no words as the man opened the door. "I'm from the A-B-C Insulating Co. Come out and look at your roof. There's no snow on it."

Grumbling, the prospect took a look. "Okay," he said, "there's no snow on it. So what?"

"Just this," answered the salesman. "Look at your neighbor's roofs. Each is covered with snow. They aren't paying heating bills to melt the snow on their roofs. Your heating bills must be about 15 percent higher than theirs."

This was the type of demonstration the prospect could understand. He invited the salesman in. The salesman showed him how insulation would help him cut his annual heating bill and the sale was made.

Visual demonstrations need not be confined to tangibles. Frequently, all it takes is a little thought to translate an "invisible" benefit into an eye-opening selling point.

An insurance agent doesn't just talk about the monthly check the family will receive after the family provider is gone. He whips out 12 checks, places them before the husband and says: "Wouldn't you like these 12 checks sent to your daughter every year for 10 years after you've gone?"

This is powerful selling, and few prospects react to it in any way except positively.



Offer the prospect a wide choice of similar products. Explain the advantages of each and invite them to examine for themselves the construction and ease of operation

Many salesmen sell products that are not portable, for example large machinery, furnaces, diesel engines, etc. Their solution — miniaturization. A compact, working model of what you sell not only hammers home your point, but it also has a novelty appeal which helps you and your product be remembered.

Blueprints Also Effective

When miniaturization is not feasible, more than one company has found that photographs, film strips, slides, or blueprints of their products can be almost as effective.

To Make Him Hear It—A second step in the demonstration process employs the prospect's listening powers. Only in a few fields is the customer's sense of hearing appealed to regularly. The man who is considering buying a house is encouraged to rap on the walls for aural proof of sturdy construction. Crystal is tinkled reverently in the stylish department stores. "Listen to that motor purr," say automobile salesmen. Radios and television sets are turned on for the prospect's appreciation.

Yet, the surface has barely been

scratched; because the sense of hearing is neglected in most demonstrations, it represents almost virgin territory for the alert salesman.

A salesman for a lubricant manufacturer, for example, always carries a stethoscope along with samples of his product. Comes demonstration time, he invites prospects to listen to the quiet operation of his product in action.

The New York representative for a soundproofing materials company arrives in a prospect's office with a portable tape recorder. First, he plays a tape of the sounds heard in a customer's office before the installation of his ceiling—bedlam.

Then, at the same volume, he plays a hushed "after" tape. When the dramatic difference has sunk in, he spins a third tape—a playback of the noises recorded in the prospect's own outer office just minutes before. "I seldom have to add much to that demonstration," the salesman reports.

It has been the experience of one automobile dealer that the solid slamming of a car door can go a long way in establishing a quality image in a prospect's mind.



PRACTICAL SOLUTIONS TO AIR CONDITIONING PROBLEMS

By S. W. REID
Air Conditioning Engineer
Gilbert Associates, Inc.

How Attic Ventilation Cuts Operating Costs

**Reduction of temperature difference between attic
and underside of ceiling can lower operating costs
as much as eight percent**

THE RESIDENTIAL cooling load is comprised almost entirely of heat which originates outside the building and enters through the four walls and roof. Of these five exposed surfaces, the roof is potentially the largest contributor due to its angular relationship to the intense rays of the sun.

From the standpoint of protection from the elements, a flat roof is quite adequate. However, from the standpoint of summer heat gain, the flat roof is not so desirable as a roof pitched above a ceiling to form an attic space. True, heat gain through a flat roof can be reduced by the appli-

cation of insulation on its upper surface, but the type of material which has sufficient strength to withstand crushing by persons walking on it is rather expensive for residential use. Further, if the insulation is applied below a flat roof between the roof beams, it may serve as a vapor trap in the winter. Vapor travelling up through the insulation will condense on the underside of the roof and may cause deterioration of the roof material.

Finally, since for a flat roof there is no practical means for reducing the temperature difference between the hot outer roof surface and the surface of the

ceiling below the insulation, the insulated flat roof will transmit more heat into the house per square foot of ceiling area than will a pitched roof with an insulated ceiling as we shall describe.

The conventional residential pitched roof consists of shingles applied on top of wood sheathing. The shingles, of course, keep out wind and water, but since there is little solid material to stop the passage of heat, the air in the attic space enclosed by the roof and the ceiling below becomes quite hot as compared with the temperature of the ambient air. Studies have shown that on the outer surface of a

south facing roof, temperatures can reach 175 F, and that coincident attic-air temperatures ranging between 120 F and 130 F are not unusual.

Not too many years ago home builders paid very little attention to attic heat gain. About the only recognition they gave it was in providing windows of one type or another in the attic space so that the owner could get some relief by opening them to take advantage of natural air currents. Little, if any, insulation was used since heating was the main problem, and solid fuel was relatively inexpensive.

As the availability of fluid fuels for residential heating increased, builders looked to insulation to make operating costs more competitive with solid fuel. The attic was the logical choice for insulation since application was simple and fuel savings were relatively high.

Study Ceiling Heat Gain

The promotion of residential air conditioning has brought with it an accelerated interest in insulation and other load reduction measures that can be incorporated into a building with economic justification. Many studies have been made to determine just what these measures are. One study was conducted during the summer of 1956 in the Warm Air Research Residence No. 2 at the University of Illinois. The objective was to determine the relationship between varying amounts of forced attic ventilation and heat gain through the ceiling below.

The test house was a single-story structure of frame construction having a black asphalt, gable-type roof extend-

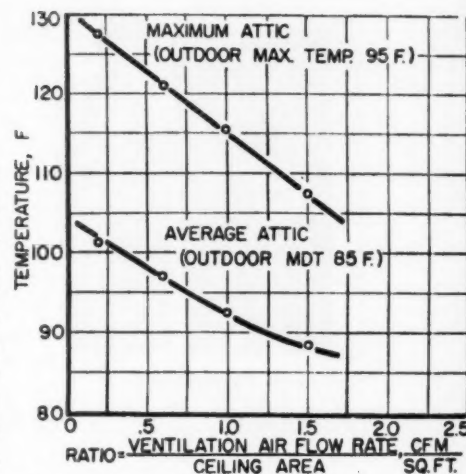
ing east and west. A 1 in. vent covered with 16 mesh screen extended along the entire soffit of the north and south eaves. This had a gross area of 6.25 sq ft. In addition, there were gable vents of 0.92 sq ft area, each covered with screen. When the attic ventilation fan was installed in the east gable, the east vent was closed to prevent short-circuiting of the air flow.

The total free area of all the attic vents was calculated to be about 3.6 sq ft. The total attic volume, including overhangs, was 1663 sq ft., and the net ceiling area from plate to plate was 1040 sq ft.

Ceiling Hs Gain 24 %

The house was insulated with 3 5/8 in. blanket-type, mineral wool in the walls and sufficient in the ceiling to produce an overall U value of 0.07 Btuh/sq ft/F. Based upon the method of Manual 11 published by the National Warm Air Heating and Air Conditioning Association, the design cooling load for the house was 22,500 Btuh at 95 F outside and 75 F inside. Of the total, 17,300 Btuh was sensible heat gain, and 4160 Btuh of this enters through the ceiling.

The test program was divided into three series each having a different ventilation rate. The actual air flows were 625, 1030, and 1560 cfm representing 0.60, 0.99, and 1.50 cfm/sq ft of ceiling area. Data covering the effect of natural ventilation had been gathered in previous experiments in the research residence and was used to calculate that the natural rate was 200 cfm for a 35 deg difference between attic and outside temperatures.



1 EFFECT OF ATTIC ventilation rate on maximum and average daily attic temperatures on a design day

Fig. 1 contains one result of the tests. It shows how the attic temperature is reduced by increasing the air flow per sq ft of ceiling area. The mass of data taken made it possible to plot two curves, the upper for the condition where the outside air temperature is at its design value of 95 F, and the lower for the actual condition on a 95 F day where the outside air temperature averages at 85 F. The upper curve shows that the attic temperature under sustained maximum conditions can be dropped from about 130 F with no forced ventilation to about 108 F with a flow of 1.5 cfm/sq ft. The lower (average) curve shows a reduction from about 104 F to 88 F for a corresponding increase in ventilation.

It is interesting to note in Fig. 1 how the lower curve begins to flatten out as the cfm/sq ft is increased. This curve will approach, but will never quite reach, the 85 F line since, no matter how much air at 85 F is moved through the attic, it will be impossible to cool the attic to 85 F so long as heat is entering through the roof at the same



Solving Problems continued . . .

time. For conditions represented by the lower curve, the point of diminishing returns is reached at about 1.5 cfm/sq ft; any increase beyond about 2.0 cfm/sq ft will not result in a noticeable reduction in attic temperature. The upper curve in Fig. 1 will also flatten out as an attic temperature of 95 F is neared by increasing the flow to 2.25 cfm/sq ft and beyond.

Ceiling Heat Gain Lowered

Having seen the effect of forced ventilation upon attic temperature in Fig. 1, let us now look at Fig. 2 to see what happens to heat gain through the ceiling. We find that an increase in air flow from the natural rate, estimated 0.19 cfm/sq ft, to the forced rate of 1.5 cfm/sq ft re-

duced the ceiling heat flow from 3.58 to 2.05 Btuh/sq ft, a reduction of about 43 percent. Since the design ceiling heat gain is about 24 percent of the total design sensible heat, the 43 percent reduction in ceiling heat flow represents a reduction of about 10.3 percent of the design sensible heat flow, or about 8 percent of the design total heat flow.

Although the 8 percent overall reduction in design cooling load was not sufficient for the particular case studied to permit a reduction in equipment selection, it did have an effect upon operating cost as shown in Fig. 3. The values given are based upon the attic ventilation fan cycling under thermostatic control, starting automatically when the attic temperature reached 89 F and cutting off when the temperature dropped to 79 F. The air conditioning system operated 24 hours a day under the control of a thermostat set at 75 F. The savings per day are given for two conditions: the first is for a design day (95 F maximum out-

side temperature) where the mean daily temperature is 85 F, and the other is for a more average day where the mean daily temperature is only 75 F.

Ventilation Varies Load

Applying the experimentally determined relative percentage gains corresponding to the several conditions of ventilation shown in Fig. 2 to ceiling heat gain values calculated for zero, 2, and 3 5/8 in. insulation, we can come up with Fig. 4. As the note indicates, this is based upon the same area (1040 sq ft) as the ceiling of the test house. Several interesting generalizations can be made from Fig. 4 as follows:

1) Two inches of insulation with natural ventilation produces a greater reduction in the cooling load than it is possible to achieve even with maximum forced ventilation and no insulation.

2) Although 2 in. insulation with forced ventilation at the rate of 1.0 cfm/sq ft results in about the same ceiling heat gain as 3 5/8 in. insulation with natural ventilation, the latter would be preferred in climates where heating is a major factor, since the thicker insulation would result in the lower heat loss.

3) The benefit of forced attic ventilation in total number of Btuh decreases as insulation thickness increases. Thus, in Fig. 4 where no insulation is used, ventilation can reduce ceiling heat gain by 6260 Btuh. Where 3 5/8 in. insulation is used, the same forced ventilation can re-

2 REDUCTION OF MAXIMUM ceiling heat gain on a design day (outdoor temperatures 95 F, clear sky)

Cfm	Ventilation Rate Cfm/Sq Ft ^b	Max. Attic Temp., F	Max. Heat Flow Rate, Btuh (sq ft)	Max. Heat Gain, Btuh	Relative Gain, Percent
Natural (200) ^a	0.19	127.5	3.58	3720	100
625	0.60	121.0	3.08	3200	86
1030	0.99	115.5	2.66	2760	74.2
1560	1.50	107.5	2.05	2130	57.3

(a) Estimated

(b) Sq ft of ceiling area

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3 NET SAVING OF DAILY operating cost due to increased attic ventilation

Ventilation Rate, cfm	Design Day MDT = 85 F			Average Day MDT = 75 F		
	Reduction in Condensing Unit Operating (a) Cost, cents/day	Attic Fan (b) Operating Cost, cents/day	Net Saving in Operating Cost, cents/day	Reduction in Condensing Unit Operating Cost, cents/day	Attic Fan Operating Cost, cents/day	Net Saving in Operating Cost, cents/day
Natural	0	0	0	0	0	0
625	5.3	2.8	2.5	3.9	2.0	1.9
1030	11.2	2.9	8.3	8.3	2.0	6.3
1560	16.3	3.9	12.4	12.1	3.1	9.0

(a) Based on operating cost of 12.6 cents per hour for water-cooled condensing unit in Residence No. 2. Power cost = 2.5 cents/kwh, and water cost = 50 cents/1000 gal.

(b) Based on actual fan operating times and manufacturers' data for fans having free air delivery equal to test cfm. Motor efficiency assumed to be 50 percent. Power cost = 2.5 cents/kwh.

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duce ceiling heat gain by only 1780 Btuh.

In commenting on their work, the researchers stated that the natural ventilation rate of 200 cfm, estimated by the procedure given in the ASHRAE Guide, might be two or three times that which would occur in the average house which has vents only at the upper part of the attic. The ratio of free area of the vents to the ceiling area of the test house is 3.6/1040. This might be used to judge whether or not some other house would have more or less natural ventilation. The location of the vents in the test house provided a path for gravity flow (in soffit vents and out gable vents). This would aid in natural circulation as compared with a house having the same free vent area all located in the gables.

It may have been noticed that the air flow rates for the attic ventilation are stated as cfm/sq ft ceiling area rather than as cfm/sq ft roof area or even as the number of air changes per hour as related to the attic volume.

The investigators commented upon both of these possibilities. Regarding the use of ceiling instead of roof area, they chose the former for simplicity after calculation showed that the dif-

ference in solar radiation falling upon a flat roof as compared with roofs or various pitch was small.

Example Cited

With respect to the use of cfm/sq ft ceiling instead of changes per hour, the investigators cited the following example: A 40 x 25 ft house has a ceiling area of 1000 sq ft. With a flat roof and an average attic depth of 1 ft, a ventilation rate

of 1000 cfm would produce about 60 changes per hour. For the same house with a 5/12 pitch gable roof, the attic volume would be 2600 cu ft and a ventilation rate of 1000 cfm would produce about 23 air changes per hour. Since the solar radiation incident upon the two roofs — and, therefore, the heat transfer into the attic space — would be nearly equal, it follows that the same ventilation rates would be required in each case and not the same number of air changes.

4 CALCULATED REDUCTION of design ceiling heat gain in Research Residence No. 2 for varies combinations of insulation and ventilation

Ceiling Insulation, in.	Ventilation Rate, cfm.	Design Ceiling Heat Gain (a) Btuh	Relative Ceiling Gain, Percent
0	Natural	14,660	100
0	625	12,600	86.0
0	1030	10,860	74.2
0	1560	8,400	57.3
2	Natural	5,512	37.6
2	625	4,750	32.4
2	1030	4,100	28.0
2	1560	3,160	21.6
3- 1/2	Natural	4,160	28.4
3- 1/2	625	3,580	24.4
3- 1/2	1030	3,090	21.1
3- 1/2	1560	2,380	16.3

(a) Based on heat gain factors given in Manual No. 11, reduction due to ventilation from investigation, and ceiling area of 1040 sq ft.

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Looking At Residential Humidification

By John M. Liebmann
Chief Design Engineer
Research Products Corp.



Research Investigations Provide Data For Accurate Humidifier Selection

For northern United States, the recommended outside design condition is 20 F and 50 RH with an inside design condition of 72 F and 35 RH

IN ORDER to better appreciate the factors that determine humidity levels in a typical household in the northern United States, a study was made in the author's own home. This was extended over two heating seasons. During a two week period, dry and wet bulb readings were taken in various portions of the home to determine the overall humidity levels. The home is equipped with a plenum-mounted humidistat-controlled humidifier. This unit was equipped with a time meter so that actual running time could be recorded for evaluation. In this article (third of a series) the results of those measurements will show how the information obtained can be related to the selection of a humidifier and its effect on water vapor balances.

House Description Given

The home was completed in June of 1958. The interior was painted and finished by August and occupied during the first week

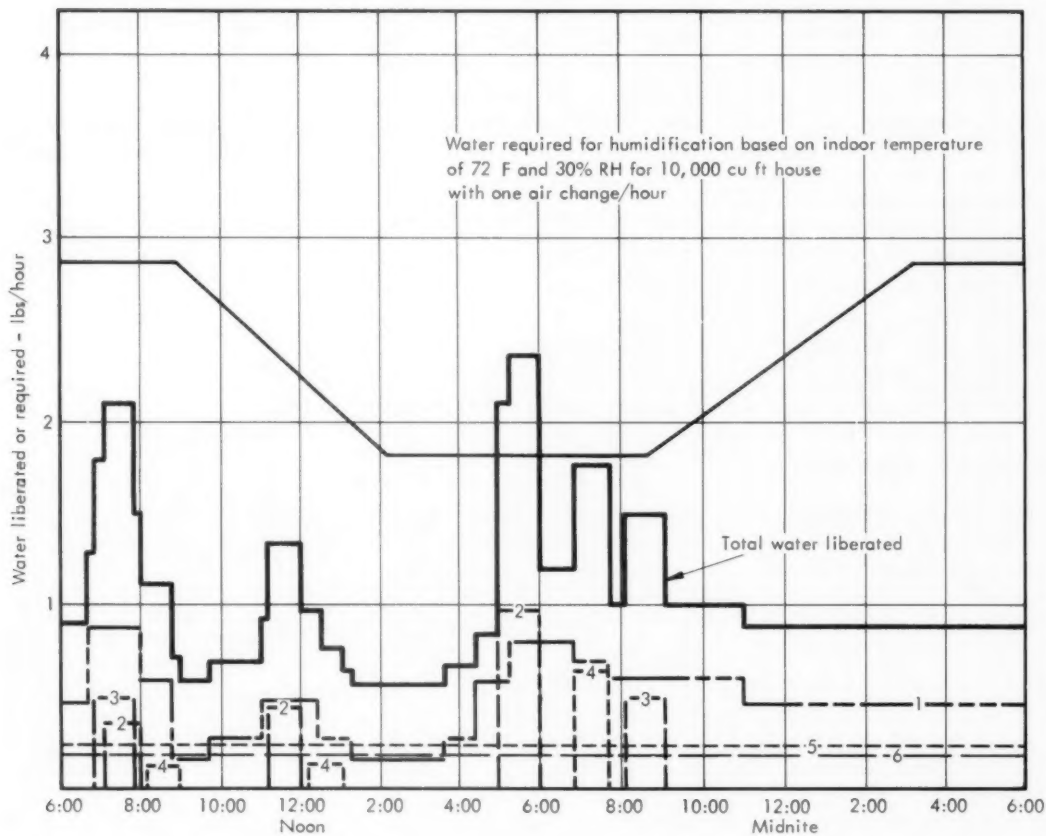
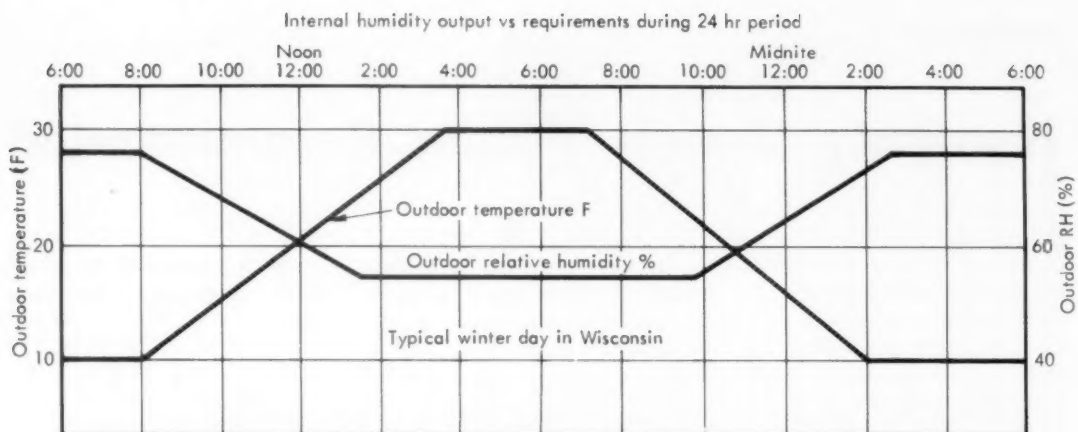
in September. The occupants are the author, his wife, and their three small children, ages 8, 6, and 4. The house is a story and a half Colonial type with a full basement. The volume of the two stories is 15,200 cu ft, plus a basement volume of 8200 cu ft. The construction is wood siding on a wooden frame, with all outside walls and the second story ceiling insulated with mineral wool batts 3½ in. thick. All insulation has aluminum foil vapor barriers on both sides except for the second floor ceiling. The author feels that water vapor will pass through the ceiling harmlessly because the attic is ventilated by natural air currents that enter and leave through louvers in the gable ends. All windows are weatherstripped and double-hung except for the wood casement windows in the basement. Storm doors are used on all exterior doors during the winter. The windows and doors are all well fitted.

The house is equipped with the following natural gas appliances:

125,000 Btuh input forced air furnace, a 30,000 Btuh input domestic hot water heater, and a 37,000 Btuh input clothes dryer. All are properly vented. The kitchen has an exhaust fan, which is used during the preparation of some of the meals. The living room fireplace was used during the two week data taking period. Warm supply air is distributed by a perimeter system of baseboard diffusers. Cold air returns are located on the baseboards of inside partition walls.

House Located in Open Area

The house is located in a new suburban section which is comparatively open. There are no mature trees within a thousand feet and the nearest house is located about 35 ft away. The homes across the street and in the rear are at least 100 ft away. The house is located on a level lot and there is no break in the terrain or shrubbery that might serve as a wind barrier. This home is proba-



Legend of moisture sources and their appearance in above graph:

- 1 — Human: Husband, housewife, children (2) of school age.
- 2 — Cooking: Electric range.
- 3 — Bath or shower: one in morning; three in evening.
- 4 — Dishwashing: After each meal.
- 5 — Houseplants: Five, at 0.05 lb/hr/plant.
- 6 — Miscellaneous: None on a daily basis, total hourly average 0.19 lb.
Mopping kitchen floor (6 lb per week).
Clothes washing (4.33 lb per week).
Vented automatic clothes dryer (10 lb per week).

continued . . .

Humidity Design Values Recommended

bly exposed to more direct wind than most suburban houses.

The humidity requirement for any home is dependent on the following factors: the house volume, the internal moisture sources, the air change rate, the desired indoor humidity and dry bulb temperature and the outdoor temperature. The first two factors can be very easily calculated by knowing house dimensions and living habits of the occupants. The air rate change is harder to determine because this depends on wind velocity and temperature difference. An arbitrary wind velocity and indoor-outdoor temperature difference has to be established. Similar arbitrary design values must be determined for the indoor relative humidity.

Requirements Determined

When the air conditioning engineer calculates the heating or cooling loads he has well established outdoor design temperatures to guide him in his selection of the proper equipment. For example, if he were going to size a building for heating equipment in Madison, Wis., he would use the ASHRAE Guide design temperature of -19 F. In the case of cooling load calculations, he would use the ASHRAE values of 95 F dry bulb and 75 F wet bulb temperatures. There are no such design numbers established for humidification because very few homes are equipped with controlled high capacity humidifiers. As these units gain wider consumer acceptance, it is expected that more attention will be given to this matter and design temperatures will be established for humidifier sizing.

The author recommends that the following values should be used for humidifier calculations in the northern United States: a design indoor dry bulb temperature of 72 F and relative humidity of 35 percent; a design outdoor dry bulb temperature of 20 F and relative humidity of 50 percent; a wind velocity of 15 mph, unless local experience has established that other velocities are more appropriate.

Recommended Values Listed

The author feels that the recommended humidity levels given in Table 1 give a good compromise between comfort standards and current house construction practice. Further examination of Table 1 and calculations will show that the above values require the greatest humidification load, assuming the homeowner will use lower humidistat settings for the lower outdoor temperatures. This will mean that 0.0047 lb of water vapor will have to supplement each pound of fresh outside air. This value can be determined by direct calculation, psychrometric chart, or by examination of the data given in Table 2, which shows that 0.0047 is obtained from the values given for 20 F (0.0011) and at 72 F and 35 RH (0.0058).

The amount of moisture liberated by natural sources would be about the same as that shown on Fig. 1. In some instances, this might be as high as 3 lb per hr for a short period. For purposes of humidification sizing, the lowest or a more conservative value on the curve shown on Fig. 1 should be used. The author feels that this value should be 0.5 lb of water

Table 1 Relative Humidity Level vs Outdoor Temperature

Percent	Temperature F
15	-20
20	-10
25	0
30	10
35	20

Table 2 Water Vapor in Air at Various Humidity Conditions*

Dry Bulb Temperature (F)	Relative Humidity (Percent)	Pounds Water/Pounds Dry Air
-20	50	0.0001
-10	50	0.0002
0	50	0.0003
10	50	0.0006
20	50	0.0011
30	50	0.0017
40	50	0.0026
72	10	0.0017
72	20	0.0033
72	30	0.0050
72	35	0.0058
73	30	0.0052
74	40	0.0072
74	50	0.0089

***Abstracted from the 1955 ASHRAE Psychrometric Chart at standard atmospheric pressure.**

vapor per hr. He also feels that humidifiers should all be rated on a comparable hourly basis. Furnaces and air conditioning units are all rated in terms of Btuh. Why not a standard of rating for humidifiers?

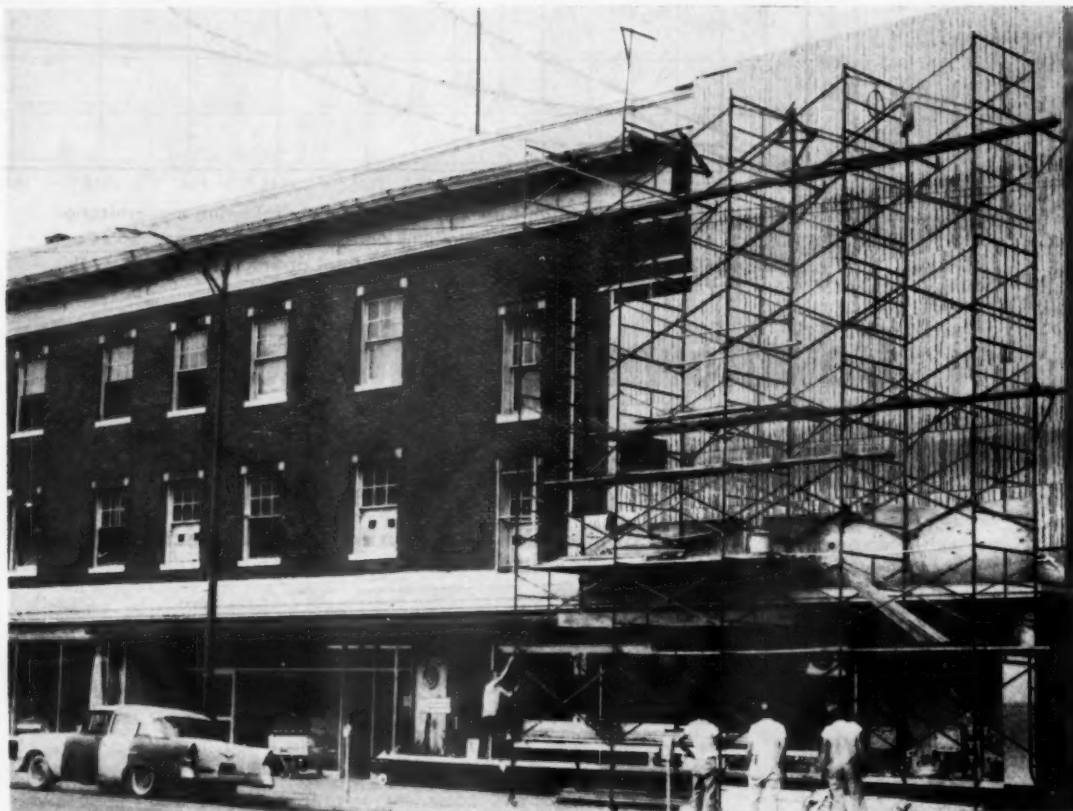
The fourth and final article of this series will be published in December American Artisan. It will continue the study of data obtained by the author and its evaluation for use in selecting humidifiers.

AMERICAN ARTISAN

Sheet Metal Section

Ventilation
Architectural

Dust Removal
Specialties

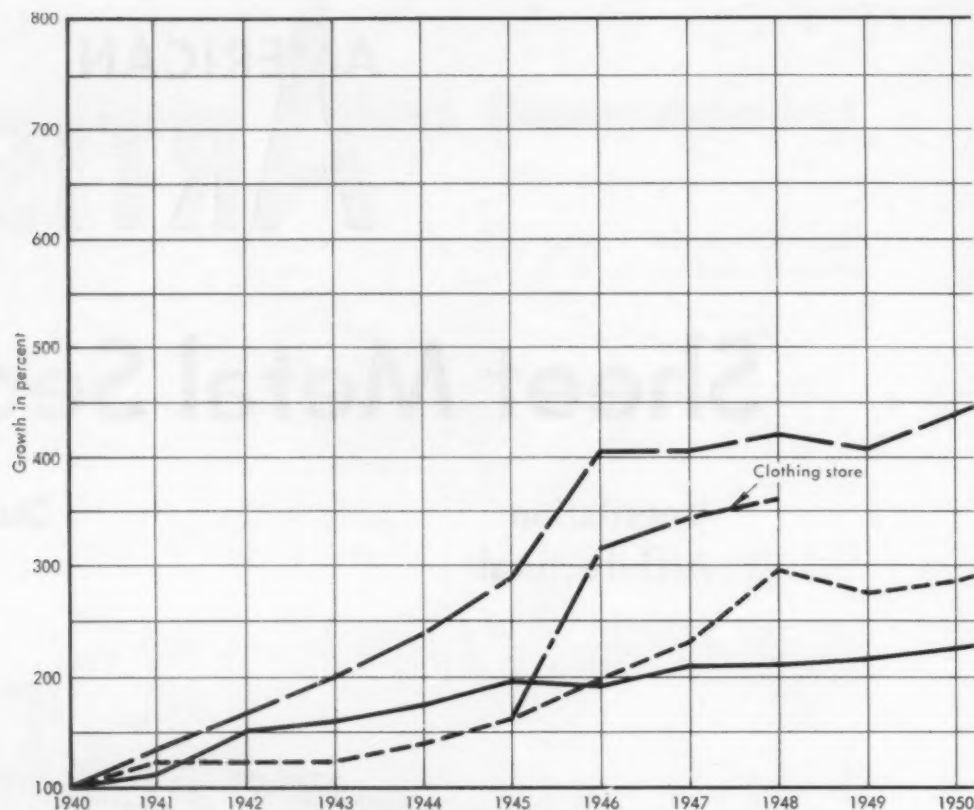


Emphasis is on metal panels when downtown shopping centers are planned p. 52

Downtown Store Modernization Program Increases Sales Page 52

Modernization Is an Architect-Contractor Joint Venture Page 59

Holds Ductwork School for Consulting Engineers Page 60



SHARP RISES ON SALES graph were noted immediately following modernization of building exterior for a drugstore, clothing store, and furniture store. Sales are compared with the area's industrial payroll and total downtown retail sales. This

Downtown Store Modernization

... and offers opportunities
to the sheet metal contractor to
participate in urban renewal projects

By William H. Withey
Armco Steel Corp.

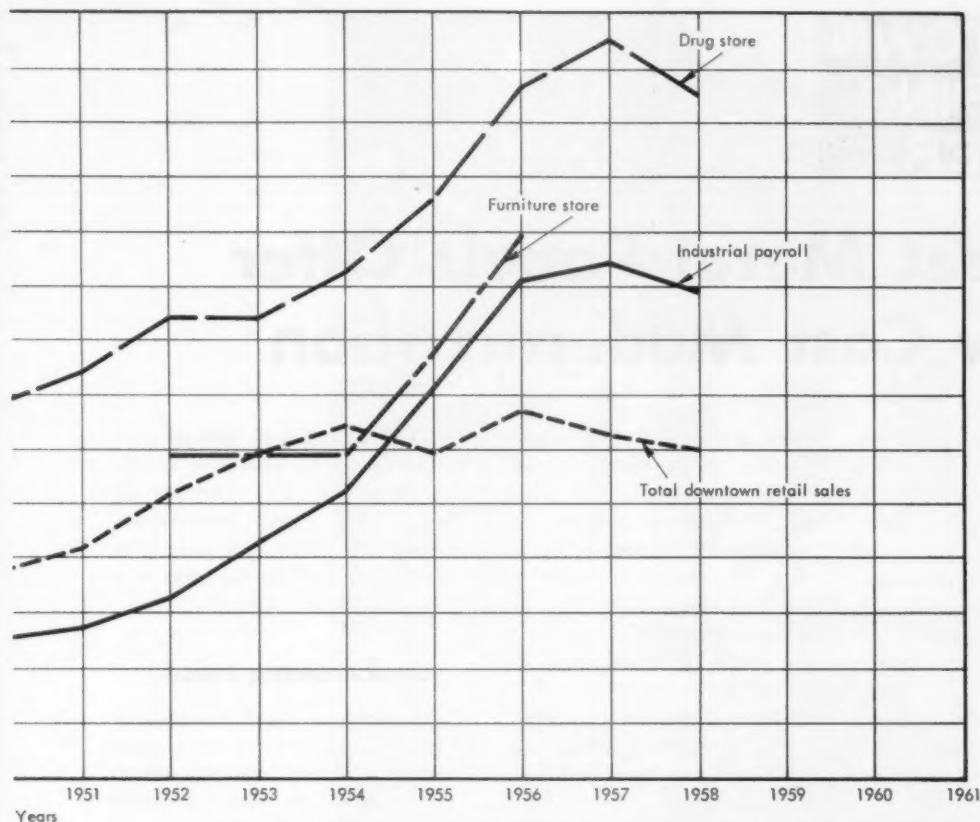
A COMPREHENSIVE storefront modernization program with heavy emphasis on porcelain enamel and stainless steel panels is now underway in Middletown, Ohio. The program is a key part of the Ohio city's redevelopment project.

In planning the redevelopment program, the Middletown Chamber of Commerce had sketches prepared illustrating what storefront modernization could do visually for a typical two block

section of the downtown area. The Chamber surveyed redevelopment programs in other cities to determine the effect redevelopment had on business.

The Chamber of Commerce's graphic presentation of redevelopment possibilities, combined with data covering redevelopment successes, helped "sell" the program to local businessmen.

Since successful redevelopment of downtown business areas brings community-wide benefits,



graph also shows downtown stores that had modernized their exteriors enjoyed increased business as the industrial payroll increased, whereas other downtown stores failed to show any increased public interest in their merchandise

Program Increases Sales Volume

Editorial Comment

THE MIGRATION of city dwellers to suburban communities has been responsible for the development of multimillion dollar shopping centers to serve the growing population. Attractive building design, adequate parking facilities, and a wide variety of merchandise have not only attracted suburban residents but also many city people. The result has been that many well-established downtown stores have felt a steady decrease in business volume.

Future prospects for the city center business district have caused many plans to be developed that would attract

shoppers to the downtown area. First, old buildings were purchased, torn down, and low cost parking facilities provided. This helped some, but not sufficiently to stem falling revenues. Next, the mall idea was introduced. Combined with adequate parking facilities, the mall idea rejuvenated downtown shopping, but fell short of achieving its anticipated goals.

The mall idea included closing a city street to create a park effect by installing attractive landscaping, children's playgrounds, small bandstands, benches, and using high fidelity

sound systems for reproduction of popular musical scores. This idea fell short of attracting as many customers as expected because the idea stopped short of complete modernization required to compete with the new, modern buildings of the shopping centers.

Following thorough studies of the habits of shoppers, the Middletown, Ohio, Chamber of Commerce has undertaken a related but different approach to attract more shoppers to their downtown area. This approach can mean a great deal of work for the sheet metal contractor.

DOWNTOWN SHOPPING CENTERS

Sheet Metal Panels Offer Low Cost Modernization

it is natural that the redevelopment program itself be implemented by a community-wide team of businessmen and average citizens.

Middletown's program to prevent slow strangulation of the downtown area is founded on two important precepts: close cooperation on the part of businesses, individual citizens, the area's major employers, combined with careful analysis of the strong points of other redevelopment programs throughout the country.

Success of the program means benefits for the community as a whole through an increased volume of business flowing to the downtown area. In addition, local building suppliers, contractors, and related businesses were able to share in the immediate construction projects initiated as a part of the program.

Redevelopment Survey

Middletown's Chamber of Commerce enlisted the aid of market development specialists to survey different aspects of downtown redevelopment. Investigations indicated that the principal appeal of suburban shopping centers was largely twofold — convenience, and that primarily parking convenience; plus newness. Studies further indicated that the problem was a national one; cities as large as New York and Chicago were

losing business to the suburbs. Further, many downtown merchants were not aware of the magnitude of the problem.

Individual efforts on the part of a few downtown stores fell into the category of "too little and too late." Only massive action could be expected to alter the exodus of the shopper to the outskirts of the city.

The Middletown Chamber of Commerce had been working on the parking problem for several years and substantial progress had been made in that direction. However, nothing had been developed to improve the appearance and convenience of the stores themselves.

Redevelopment Pinpointed

At the request of the Chamber, sketches were prepared to show how a two block section, located in the heart of the downtown area might look if it were redeveloped. The sketches maintained store individuality, but at the same time eliminated the cluttered appearance of the area. For example, all projecting signs were eliminated. Porcelain enameled iron was featured as an economic, weather-resistant material for the building facades. Stainless steel and other sheet metal products were also displayed to show the variety and versatility available.

These sketches were presented to the Chamber of Commerce

and compared with colored photographs of the area as it actually appeared. The Chamber of Commerce was enthusiastic. Next, the downtown merchants had to be sold on the idea of a combined renewal project.

Sales-Remodeling Linked

Figures on retail business in the Middletown area were compared with the regional industrial payroll. It was discovered that downtown retail business had been at a standstill or slightly depressed since 1954, whereas the industrial payroll had scored a substantial gain. In contrast, overall retail business activity during the 15 years before 1954 had shown an appreciable 25 to 30 percent annual gain.

The static state of downtown sales was obvious, but the problem of whether redevelopment would reverse the trend remained unanswered. Checking with local merchants who had remodeled in the past disclosed a strong pattern of increased sales immediately following and continuing long after remodeling.

Case Histories Studied

Of particular interest was the case of a drug store and a furniture store located side by side. The drug store was remodeled in 1943 after a fire. Sales imme-



FEATURES THAT LABEL a store as "old fashioned" are: roof overhang; high, narrow windows; exposed gutters and downspouts; and "ginger bread" ornaments. Sheet metal panels and grilles formed an economical and attractive cover for this store at a cost of less than \$8000

diately increased after reopening. For the next several years, growth continually exceeded the average growth of similar business firms. After that, growth continued at about the same rate as the over-all average. Then in 1954, approximately 10 years after the original remodeling, the furniture store next door was remodeled.

As part of the furniture store's remodeling program, it put up a canopy across the front of the building. The owner of the drug store took this oppor-

tunity to do a little more face lifting. An identical canopy was put up across the drug store's facade. Thus the two stores were linked together.

Both merchants experienced a substantial gain in sales almost immediately, and the trend has continued.

Another Program Evaluated

In 1958, Elmira, N.Y. (population 50,000) had problems with inadequate off-street parking for the downtown shopper and a

general urban business decline.

A group of downtown merchants banded together with a master development plan and began remodeling. As a result, downtown Elmira is rapidly coming back today as a thriving business center.

The basic tools of the Elmira plan were adequate parking and store refurbishing. The merchants have made the downtown area as attractive and convenient to shop in as a suburban shopping center. One group of 22 adjacent stores remodeled at the

DOWNTOWN SHOPPING CENTERS

Store Remodeling Linked To Increased Sales

same time and gave themselves the name of "Mid-town Plaza." The stores opened in October, 1959, and within six months individual merchants were reporting business up as much as 30 percent.

Another 25 adjacent stores in a two block area directly across from "Mid-town Plaza" have now developed "Center-town Plaza."

Knoxville, Tenn. has a similar story to tell. Through its Downtown Merchants' Association, Knoxville developed what might be called a downtown shopping center. Here again, a group of stores banded together to provide adequate and easily available parking along with remodeled store fronts.

Facts Presented

Armed with the facts on local business, plus the histories of the Elmira and Knoxville merchants, the Middletown Chamber of Commerce sponsored two meetings. One meeting was held for downtown property owners; the other for downtown merchants.

All facts and figures that had been gathered were presented to the two groups in graphically illustrated form. Then the master Middletown redevelopment plan was unveiled. It was explained how similar projects had worked in Elmira and Knoxville, and

what success had been achieved by Middletown merchants who had already remodeled. These successful local merchants were asked to relate their experiences to the group.

Program Publicized

Heavy publicity accompanied the presentations, not only in Middletown newspapers, but also in papers in neighboring communities. Several editions ran the architects' sketches and explained the use of sheet metal, the major building material selected for the remodeling.

Middletown's own program is well underway, though the completion date for the project is in the future. Middletown is still "living the program." One of the most interesting aspects of the program is that the first three remodeling projects to be undertaken following the program were all in areas immediately adjacent to the two block area originally selected to illustrate the project.

The Middletown case does not stand alone. Similar coordinated and cooperative projects, using the same techniques as described above, can open new markets for every major urban area competing with suburban developers for the consumer's business.

Several businesses that have already completed their part in the modernization program are

showing the way for others in various stages of planning and construction. In many cases, integrated planning has produced such effects as connecting canopies spanning several store fronts. Research showed that creation of an integrated look has proved beneficial to all firms involved.

The most significant aspect of the Middletown program is the striking visual effects created through relatively inexpensive and simple construction. Major structural changes are avoided completely in almost all projects. Porcelain enamel and stainless steel paneling in particular are used in attractive and effective ways to cover windows, projections, and other structural details that detract from building appearance.

Convenience Emphasized

Heavy emphasis is placed on rapid construction that business may proceed as usual during all phases of the exterior modernization program. Considerable thought has been given by architects and building owners to the problem of minimizing maintenance of building exteriors. Proper materials selection is a major factor in achieving this goal.

A leading stationery store chose a combination of porcelain enamel and stainless steel to



BEFORE MODERNIZATION, drab appearance had little appeal to potential hardware customers as they left their car in a municipal parking lot across the street



MODERNIZATION is accomplished in less than two weeks, and without interruption to business. Enameled metal panels make the building look "like new"

DOWNTOWN SHOPPING CENTERS

THIS WAS an old fashioned appearing building until a sheet metal contractor fabricated and installed some "V" section panels over the original exterior wall. A metal canopy adds the finishing touches needed for a modern store



Shop Fabricated Panels Dress Up Store

achieve a new look for its outdated building. The roof overhang and narrow second story windows conveyed a distinct "old fashioned" appearance before modernization. By removing the overhang, a relatively simple operation, and furring the windows, the architects were able to achieve a flush paneling effect from roof top to the top of the first story show windows.

The porcelain enamel paneling covered the left two-thirds (18 ft) of the second story space.

The right third (9 ft) was covered by an attractive stainless steel grille. It was necessary to block two windows behind the grille with plywood to produce a uniform surface visible through the grille. The surface was patched where necessary and painted. The other windows behind the porcelain enamel paneling were furred but not filled. Blocking of the interior of the windows was handled with $\frac{3}{8}$ in. sheet plywood.

In modernizing the first floor

storefront, the architects decided to move the entrance off-center. Although this change seemed to be a major one, it was accomplished without structural changes. The original columns were retained and used as anchors for a new show window system. The door system was recessed and moved to the right of the store front. As a result, show window space was greatly enlarged.

The upper story paneling and grille required less than 2 weeks

to install. The entire storefront modernization program was completed in less than a month. Total cost for exterior modernization was about \$8000. During the project, business went on as usual. It is expected that maintenance will be no problem.

Designs Emphasized

Like the stationery store, a three story brick building used by a hardware company (Fig. 2) was also distinguished by upper story windows which served no useful purpose and a roof overhang. To create a bold, striking appearance, the owner selected porcelain enamel panels with a jagged stripe pattern produced by silk screen processing.

Installation of the paneling required furring of the windows and removal of the roof overhang. The overhang was removed and the paneling placed in one operation as workers moved along the building. Special scaffolding (Fig. 3) was

used to facilitate the operation. Paneling of the two story area was accomplished in less than two weeks. Since second and third floor interior space is a storage area, the windows were not filled in on the inside as were the windows of the office equipment building.

Before proceeding with the modernization program, the hardware company acquired the one portion of the building it had not previously occupied. This area, formally a restaurant, had to be integrated into the overall appearance. Integration involved extending the plate glass exterior of the hardware store some 20 ft.

Cost Held to \$8000

Modernizing the upper stories of the hardware store with metal panels cost about \$8000.

A furniture store, adjacent to the hardware store, made exclusive use of stainless steel in its face-lifting program. Moderni-

zation of this storefront involved furring existing standard windows before the stainless steel panels were applied. A bay window was removed on the second floor to permit flush paneling. The space left by the window was paneled with plywood.

Canopy Sets Off Panels

Panels were "V" sections 6 in. on a side. Flanges, on either end, measuring 2 in. long, provided fastening surfaces. A canopy was added to the building to complete its distinctive look. The addition of canopies and the removal of overhanging signs (Fig. 4) is a common approach utilized in the sketches for the planned two block demonstration area.

The Middletown program is continuing, and the principle of design distinction through simplified construction in terms of cost and time remains as the major precept followed in all projects.

Modernization — Architect-Contractor Joint Venture

MODERNIZATION OF existing exterior building walls with metal panels offers both the architect and the sheet metal contractor an opportunity to express the skills of their individual trades. Each in his own way is looking for a simple solution to achieving beauty with economy. Shop fabricated panels permits the architect to express himself with standard designs that the sheet metal contractor can fabricate as separate components and assemble at the job site according to the overall coordinated modernization project as visioned by the architect.

Economical modernization of buildings in groups create design problems for the architects such as Brandenburg and Switzer who are handling the Middletown project. But the modern sheet metal shop is equipped to build any number of panel designs to give the architect the tools he needs to avoid monotony. Metal panels offer all that architecture needs today — standardization, modularity, industrialized construction techniques, unity of design, available components and low maintenance costs.

According to Thomas H. Creighton, editor, *Progressive Architecture*, in an address before the 23rd Annual Convention of the National Association of Architectural Metal Manufacturers, the architect needs accurate information which he can depend on to assist in preparing estimates for his clients, both as to costs and time required to complete modernization work. The client needs this information to plan other work that must be coordinated with exterior modernization and to estimate interruptions in normal business activities due to entrance blockage, display window treatment and even to planning sales and other activities related to announcing to the public via radio, newspapers and direct mail etc., news about the renovations that have been made.

"The architect must spend his clients money as intelligently as he spends his own", Mr. Creighton said. "And he must be able to advise his client on new materials and techniques to substantiate his recommendations, and this is why he often has the dichotomy of insisting on quality production while seeking a lower cost."



STEERING committee for educational program reviews sequence of slide film presentation. From left are Paul Stromberg, Claude R. Breneman, and D. E. Shytle

Consulting Engineers Go to School

Washington, D.C., contractors conduct a forum for those who write specifications to assist them in assigning related work to the proper construction trades

TO DRAW ATTENTION to the full scope of work that a sheet metal contractor is capable of performing, and which has been assigned to him through agreement with other crafts serving the construction industry, the Sheet Metal Contractors' Association of the District of Columbia recently held an afternoon forum for both private and government consulting engineers and others whose duties required them to write specifications for new and modification work.

The program commenced with a "get acquainted" hour, followed by luncheon, after which association president D. E. Shytle introduced the member contractors and outlined the afternoon's program. The program featured an explanation of the Duct Manual and Sheet Metal Construc-

tion Guide for Ventilating and Air Conditioning Systems as published by the Sheet Metal and Air Conditioning Contractors' National Association.

Slide Program Used

The program commenced with a slide film presentation designed to acquaint engineers with the tools used in a sheet metal shop to fabricate duct systems. As each slide was shown, a verbal description was given of the action taking place. The first slide introduced the subject of air conditioning. A description was given of what is expected of air conditioning systems and various methods of achieving good air distribution. This involved low pressure duct systems, high pressure duct systems, dual duct sys-

tems, and variations and combinations of the various types of systems outlined.

As the program progressed, additional slides pictorially took the engineers and other guests on a trip through a modern sheet metal shop. The slides showed how sheet stock is received at a sheet metal shop, its storage, and how it is moved from storage to fill an order. The picture series explained how the trimmed sheet is delivered to power shears where it is trimmed, moved from the shear to the notching operation, and from the notching operation to Pittsburgh lock forming machines. From this point, the slides showed the fabricating process through the standard technique of crossbraking and the forming of 90 deg angles.

From the brake, the slides car-

ried the audience through the closing of seams to form the completed duct section.

Further Operations Shown

The viewer then was introduced to other fabricating operations accomplished in power brakes, among which is the multiple punching of angle iron for riveting to wide duct sections to provide rigid support. An explanation was also given of companion flanges used for joining large duct sections.

In the case where acoustical insulation was required, the slide film program showed the trimming of insulation, application of fasteners and adhesives, placement of insulation in the duct, and the assembly of the duct sections into a completed duct.

The slide program then introduced the audience to the types of fastening methods used for joining duct sections. Standing seams were shown and the various methods of forming and installing this type of fastener were described.

Cleat bending was explained, along with a description of the tools used to fabricate both the duct section portion and the drive slip.

Duct Connections Explained

The introduction of the subject of duct connections was used to further explain other types of section joints. The box or pocket lock (government lock) was explained from its fabrication to completion. In addition, the bar slip was explained from its fabricating stage through its installation. Also, the commentary explained recommended uses of the

various types of duct connections, and how the specifying engineer is able to exercise a preference when suitable choices are available.

From the duct connection phase of the program, the slide film story carried the audience through the fabrication of high pressure ducts, and how elbows and seams are welded and tested for tightness.

The fabrication and installation of turning vanes was shown and explained for the benefit of those who had never seen this product in its initial stages of fabrication.

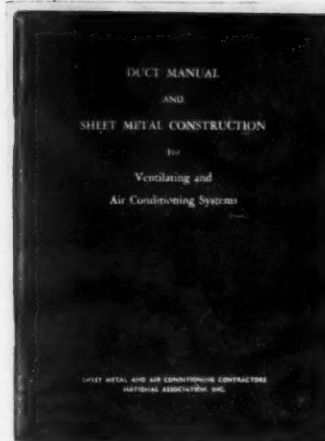
Shop Tools Explained

In addition to the standard tools found in the sheet metal shop, combination tools that assist the sheet metal contractor to simplify his fabricating technique were shown and explained. Also shown were newly developed tools that, in recent years, have proven themselves to be preferable to older techniques employed.

One shop technique that is growing in popularity — the use of coiled sheet stock — was explained, as was the application of pneumatically and electrically powered tools that can be used to assist the sheet metal contractor in promptly moving an order through the shop.

At this point, guests were permitted to ask questions of the sheet metal contractors in attendance, and opportunity given to provide additional information on any operation in which the consulting engineer was specifically interested.

As the second portion of the forum got under way, a copy of



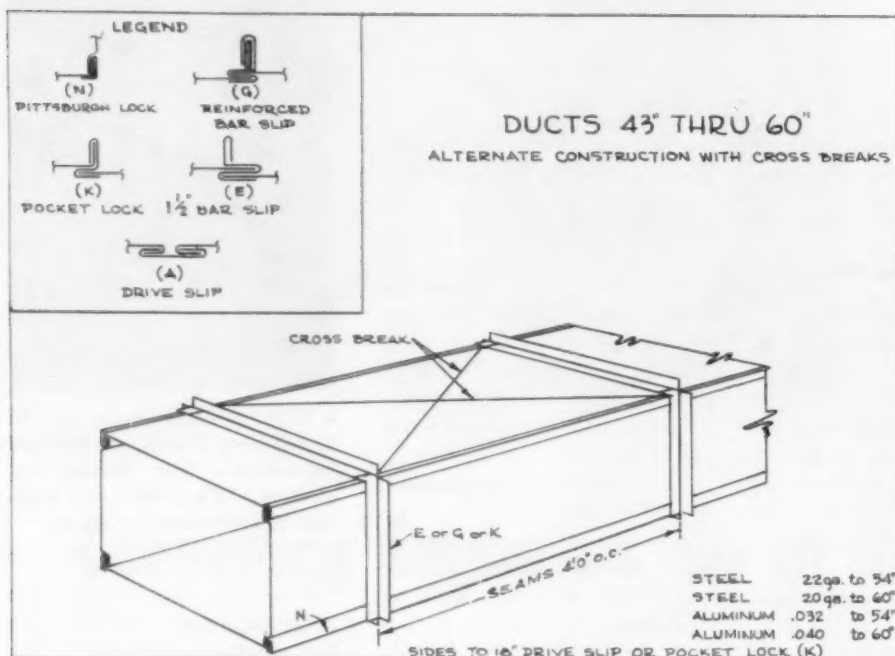
A COPY of Sheet Metal and Air Conditioning Contractors National Association's Duct Manual was given to 178 engineers and architects who attended the forum

SMACNA's duct manual was given each guest, and the slide film program continued.

The narrator flashed reproductions of plates in the SMACNA duct manual on the 7x 7 ft screen and requested the audience to turn to specific pages. For instance, on page 3 of the duct manual the various positions available to a specifier for blower discharge opening and for rotation of blowers were described, pointing out the advantages and disadvantages created by some of the choices available to the person making the selection.

The audience was asked to turn to page 5. Each of the symbols shown on this page were briefly reviewed and questions were asked and answered as they applied to drawings for ventilating and air conditioning systems. On page 13 appears a diagram of a duct system; the various types of seams that could be made for ducts through 18 in. maximum width were described. On this drawing the various gage sizes required for different widths of duct up to and including the 18 in. width are shown. In addition to the construction details are the various types of fastening de-

continued . . .



TYPICAL OF THE SLIDES shown to consulting engineers and architects was Plate 9 A from SMACNA's Manual of Duct Construction describing acceptable alternates for fabricating and erecting ductwork of various sizes and materials

Duct Manual Serves As Engineers' Textbook

vices available for duct sections.

On succeeding plates the audience was asked to note the variations in construction. These variations were elaborated upon, with the narrator pointing out the choice of recommended (or acceptable) connections available to the specifying engineer.

After the variations in duct construction were covered, the program moved on to the various methods used to support ducts. This description was covered in a discussion as related to plates No. 16 through 20. The variations in methods of hanging were emphasized, pointing out the acceptable type as contrasted to techniques that failed to provide the support required for various sized ducts.

Further explanation was provided on methods of fabricating

turning vane elbows, tapers, off-sets, streamlined ducts, tee connections, branches, register and grille connections, volume dampers, access doors, louvers and screens, fire dampers, and coil enclosures. In all, 150 slides were shown.

Duct Samples Examined

Upon completion of the review of the plates in the duct manual, the session was opened to an examination of samples of various types of duct construction and related components. The samples had been fabricated in the apprentice school and delivered to the forum to help the consulting engineers to more clearly understand the various components required for an adequate air distribution system.

Joseph D. Wilder, executive secretary, Sheet Metal and Air Conditioning Contractors' National Association, Elgin, Ill., outlined the national association's work in compiling the duct construction manual and pointed out its purpose. He stressed the point that all materials and equipment in connection with duct systems should be specified under "Heating", "Ventilation", or "Air Conditioning".

Mr. Wilder advised the consulting engineers to use the duct manual frequently and to specify by plate number as they would find it easier and faster to write specifications on this basis, with assurance that the job would be installed as desired.

Attendance was 178, with 131 being consulting engineers and 47 association members.

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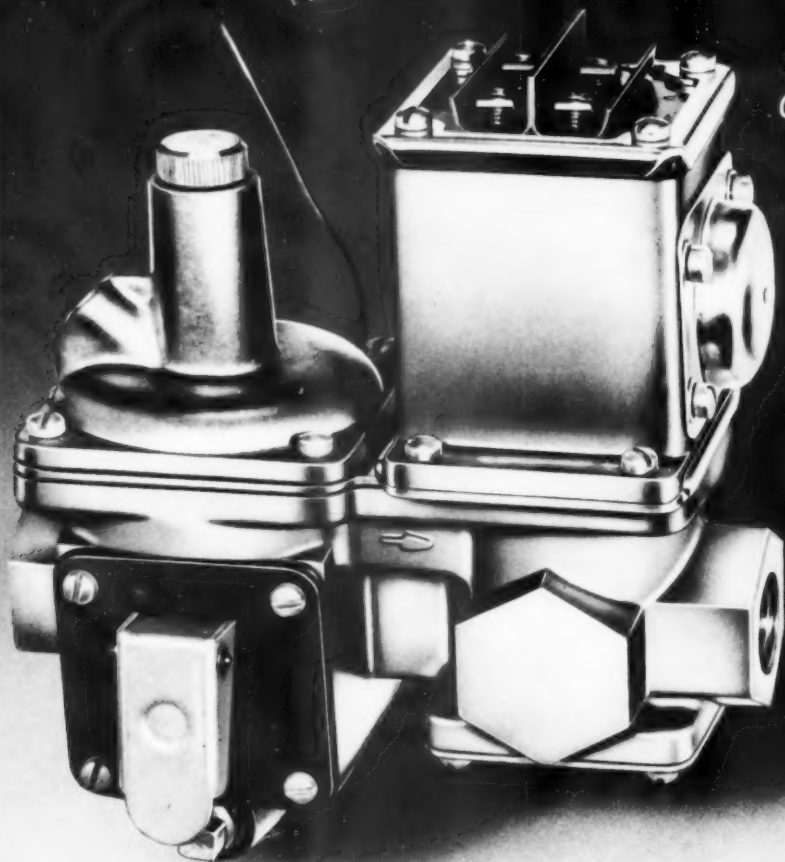
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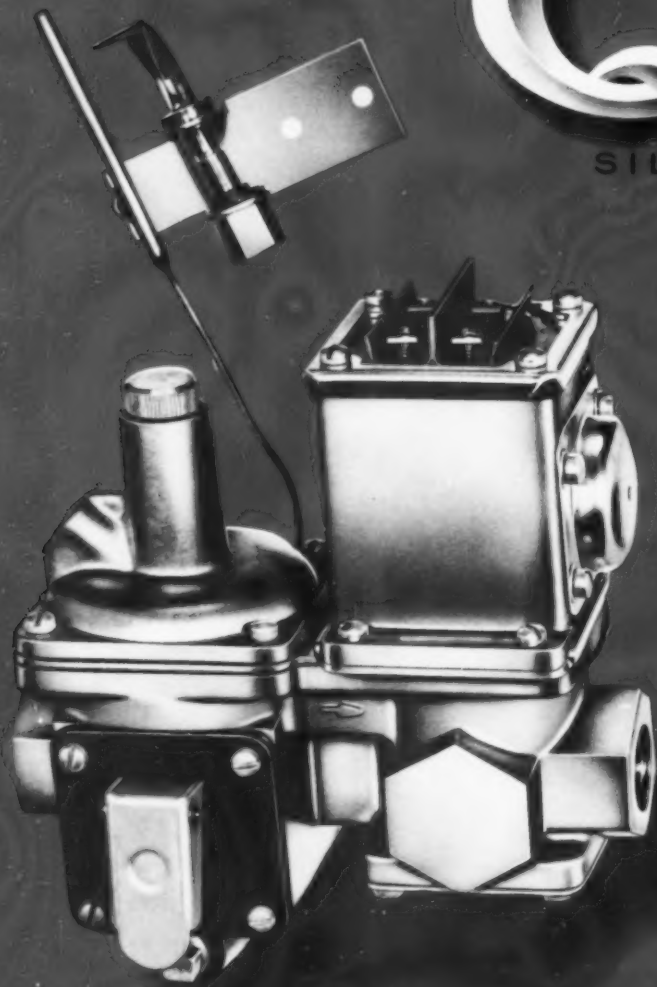
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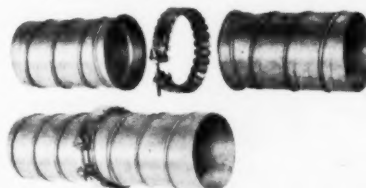


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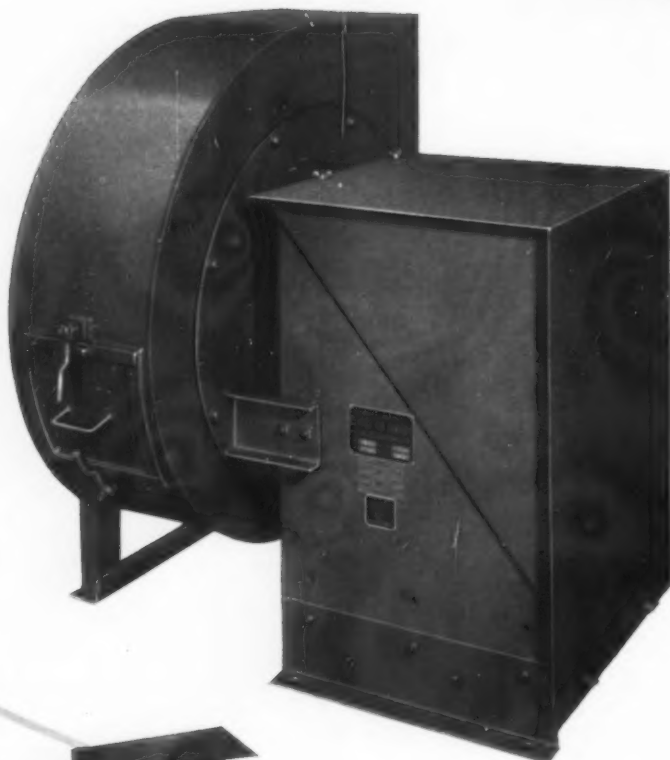


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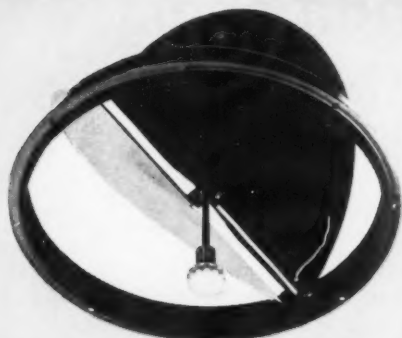
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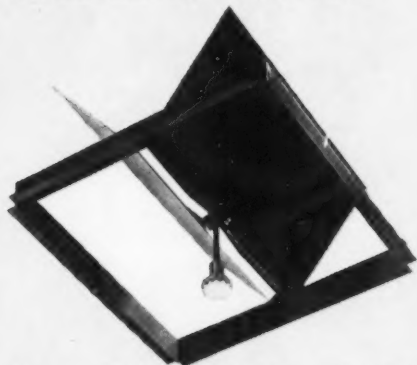
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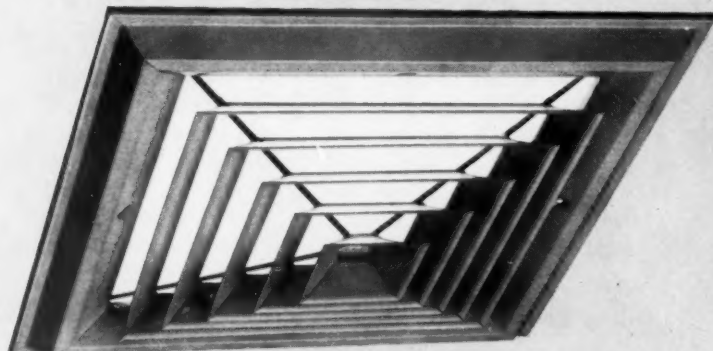
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YOU AND THE LAW

Court Has Difficulty Defining a Self-contained Air Conditioner

"Who will get the taxes already collected" seems to be of more concern to the court than what is to be taxed

A FEDERAL TAX statute provides that a tax of 10 percent be levied on the sale by manufacturer, purchaser or importer of "self-contained air conditioning units." A recent comment by the United States Supreme Court is that this tax has been paid on about 50,000 of these units and that the seller has in each of these instances paid the tax with the written consent of the ultimate purchaser that a claim for a refund be filed.

Ruling Made in 1954

The Commissioner of Internal Revenue published a ruling in 1954 defining, or attempting to define, the phrase "self-contained air conditioning unit." That ruling is in part:

"It is held that the type of self-contained air conditioning unit subject to tax under this law includes a unit, whether factory made encased assembly, or sold for assembly on installation, primarily designed for free delivery of air and for installation in or in front of a window or other opening which: 1) contains means for moving outside air through its condenser; 2) incorporates means for cooling, dehumidifying and circulating the air of a room or other enclosure; and 3) has a total motor horsepower of less than 1 horse-

power for motor-driven compressor types, or, in the case of absorption types, a cooling capacity of less than 10,000 Btuh."

Reference to Specific Ratings

When a suit brought against the United States for a refund of two tax payments came before the Federal Court of Appeals for decision, it was said by that court of the statements in the Internal Revenue ruling:

"The Commissioner's ruling would determine whether such air conditioners as those involved in this case are of the household type by applying a test based upon the horsepower of the motors contained therein.

"It will be noted that the act makes no reference to horsepower or motors. The horsepower test is irrelevant for that reason and also for the reason that a resort to that test opens up what the record shows is a field of confusion and controversy. This involves among other things as seriously questioned, as to whether rated horsepower or actual horsepower is the controlling factor. Against such a background the horsepower test is inconclusive and uncertain.

"It might well be that Congress purposely omitted any reference to the terms 'horsepower' or 'household type air condition-

ers' with full knowledge of the impracticability of using such a test."

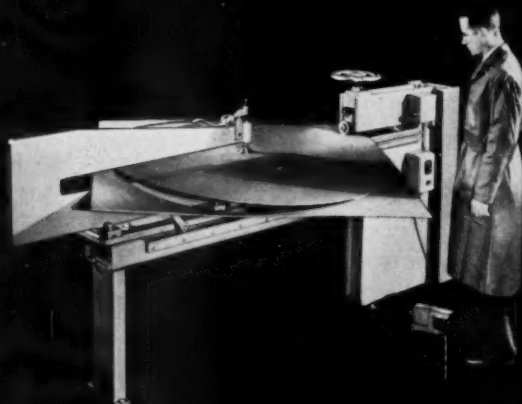
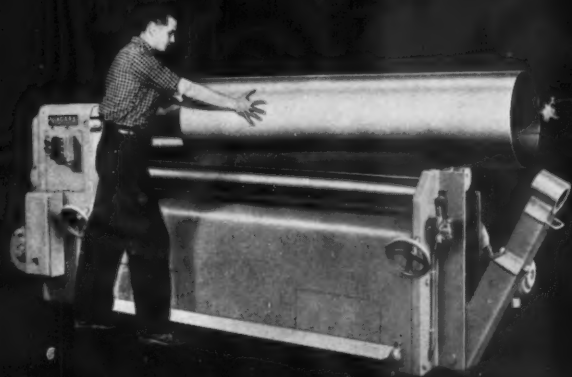
To this statement that court added, "An air conditioner is of the household type when it is made to meet the needs of a household. If a housewife enters a store of an air conditioner dealer and expresses a desire to buy an air conditioner for her home she will be furnished with an air conditioner of a household type, i. e., one adapted to the home space which she seeks to air condition. Such an air conditioner is the type mentioned in the law now under discussion. Those were the air conditioners upon which Congress laid the 10 percent tax. Neither the rated nor actual motor horsepower of such air conditioners is of any moment here."

Over a year after the decision of the Court of Appeals had stated its point of view, this controversy came for review before the U. S. Supreme Court, the decision of the Court of Appeals was reversed by a five to four majority of that court, four of the nine justices of the Supreme Court dissenting.

Dissenting Judge's Reason

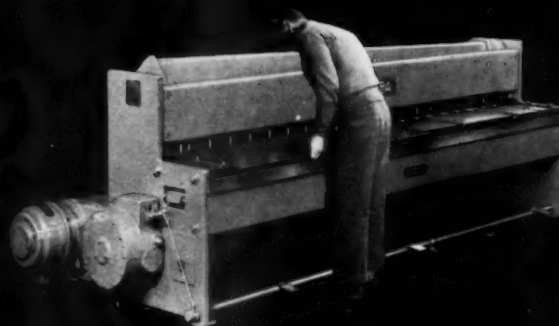
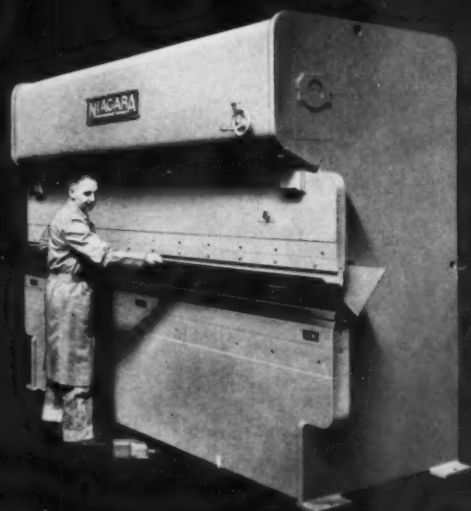
By one of the dissenting justices it was said of this reversal, "I think it highly unfortunate the court should enter an order which may permit the manufacturer to keep as a windfall considerable amounts they have charged customers for 'excise taxes.'"

(This article continued on 76)



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What Are "Elements of Agreement"?

Defects such as illusory obligations, and lack of mutuality and certainty in agreement will render contracts unenforceable

UNDER AN AGREEMENT made by an air conditioning wholesaler with a manufacturer, the wholesaler was given the exclusive franchise to sell the manufacturer's equipment and appliances within a radius of approximately 150 miles of his place of business. Should the manufacturer sell any air conditioning units directly to dealers within this area, the wholesaler would be paid a commission on all such sales.

The manufacturer further agreed that he would sell his product exclusively through this wholesaler in the specified area. No date was set either for the beginning or the end of the contract term, hence it was terminable at the will or wish of either of the contracting parties.

Suit and Counterclaim

On the other hand, the wholesaler assumed no obligation to buy any of the manufacturer's air conditioning units, nor to refrain from selling the equipment of competing manufacturers. Suit was brought recently by the manufacturer against this wholesaler to recover for equipment he had sold and delivered. The suit was met by a counterclaim on the part of the wholesaler for many times the amount demanded in the manufacturer's suit, for commissions alleged to be due on sales made directly by the manufacturer in the area.

In its decision of this action, the court referred to a controversy involving these same circumstances, that was before the United States Court of Appeals several years before, except in

that instance the manufacturer, rather than the wholesaler, had assumed no obligation.

"As the manufacturer was not bound to make deliveries under the contract," said the United States Court of Appeals in the earlier case, "therefore it was void for lack of mutuality insofar as it provided for future sale or purchase. The law is well settled where a contract for the future sale and delivery of personal property confers upon either party an arbitrary right of cancellation prior to delivery; it is lacking in mutuality and will be held binding upon the parties only to the extent that it has been performed.

"And with respect to wholesalers' contracts like that under consideration, it is equally well settled that such a contract, which does not bind the manufacturer to sell and deliver, is terminable at will, imposes no liability upon him if he terminates it or refuses to make deliveries to the dealer. The contract merely furnishes a basis for future dealings to be observed no longer than is mutually satisfactory."

Certainty is Needed

In another incident before the federal courts shortly after the turn of the century, an offer had been made for the sale and delivery of merchandise at a named price, but with no specific agreement as to the quality. Later when an action was brought against the manufacturer for failure to deliver, the court, in refusing to hold the manufac-

turer liable for any damages, said:

"The promise to furnish, deliver, or receive specified articles at certain prices, without any agreement to order or to accept any amount or quantity of the articles, is without binding force and effect because neither party is thereby bound to deliver or to accept any quantity or amount whatever. Such promises are void because they lack one of the essential elements of an agreement — certainty in the thing to be done.

"The fatal defect in the alleged contract was that the manufacturer was not bound to deliver, nor the wholesaler to take and pay for any specific quantity of the offered articles. As to all undelivered articles, that defect still inheres in the agreement. The wholesaler never agreed to order or to pay for any quantity of these undelivered articles.

"Nor can an action be better maintained against the manufacturer for his failure to deliver the articles which the wholesaler ordered because the offer contains no measure of the quantity which the manufacturer was to deliver, consequently no agreement to deliver any whatever."

Basing its decision on these statements of the law, the court, in this current case in which had been interposed the counterclaim against the air conditioning manufacturer, said in conclusion,

"In short, the wholesaler's obligation under the oral agreement was illusory and capable of performance without detriment to the wholesaler or benefit to the manufacturer. This lack of consideration relieves the wholesaler from any obligation under the agreement for the exclusive sale and distribution of the manufacturer's product."

GETTING YOUR SHARE OF THE METAL ROOFING BUSINESS?



Every day more and more metal roofs of Follansbee Terne are going on new modern buildings

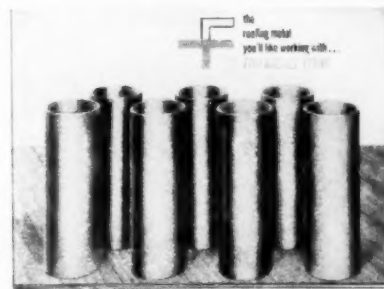
You've probably noticed it too—the metal roof of Follansbee Terne (you may know it as "tin") is getting more popular every day. There's good reason for the increased interest in Terne—modern day architecture is giving more recognition to the roof as an important design element, and the metal roof provides the architect with an opportunity to use distinctive form and color to create a desired effect.

Form and color are not the only advantages of Terne. Time and time again, Terne has proved it is a lifetime material. Many Terne roofs have been in service for over 100 years.

For the roofer, Follansbee Terne means a better roofing job and a better profit. It is easy to work, easy to solder and Terne's lead-tin alloy coating makes an excellent bond with paint. Follansbee Terne is priced to offer the roofer a better profit.

As a complete roof material, or as weather-sealing, Follansbee Terne is a roofing metal that has no equal. It's a building material that will help you get your share of the metal roofing business.

NEW a book prepared especially for sheet metal contractors



Gentlemen:

Send me your free book on Follansbee Terne.

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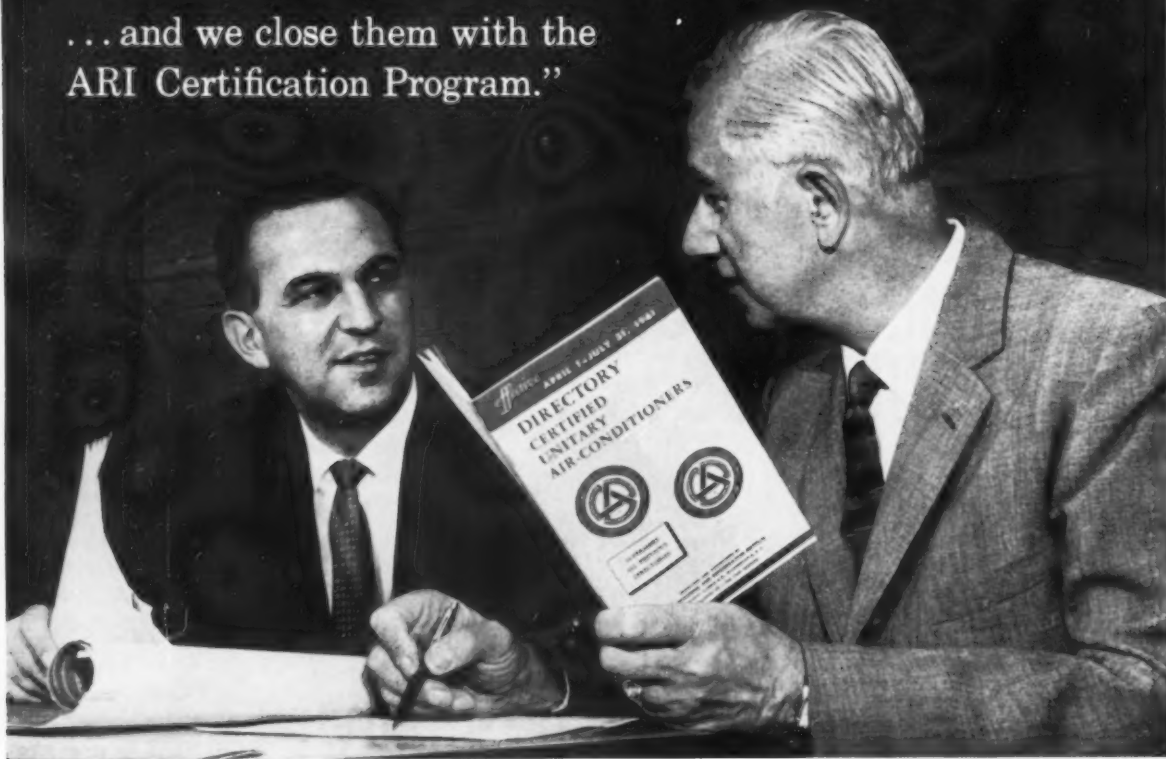
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FOLLANSBEE STEEL CORPORATION
Follansbee, West Virginia

"We close sales on 42% of our bids for air-conditioning

**... and we close them with the
ARI Certification Program."**



"Thanks to the ARI Certification Program we've been getting more than our share of central air-conditioning installations here in the extremely competitive Washington, D.C. market," says George Rosen.*

"Here's how we do it:

"First we advise our prospect to forget about 'horsepower' and 'amperes'. We explain that the *industry-approved* performance standard is based on Btuh. We tell him his best buy will be the unit that gives him the most Btuh for each dollar he spends.

"Then we use the ARI Directory to back up our performance claims for the equipment specified in our bid. We explain how the Certification Program works and point out that the ratings in the Directory are subject to checking at any time by an independent testing laboratory. We emphasize the severity of these tests and how they assure him of satisfactory performance and minimum maintenance expense. The ARI consumer folder, 'How to Buy Central Air Conditioning' is a real help in getting this story across.

"Our firm has a reputation for integrity, but we have profited from the *extra* confidence inspired by the impartial authority of the industry-approved ARI Certification Program. It is often the decisive factor in closing a sale."

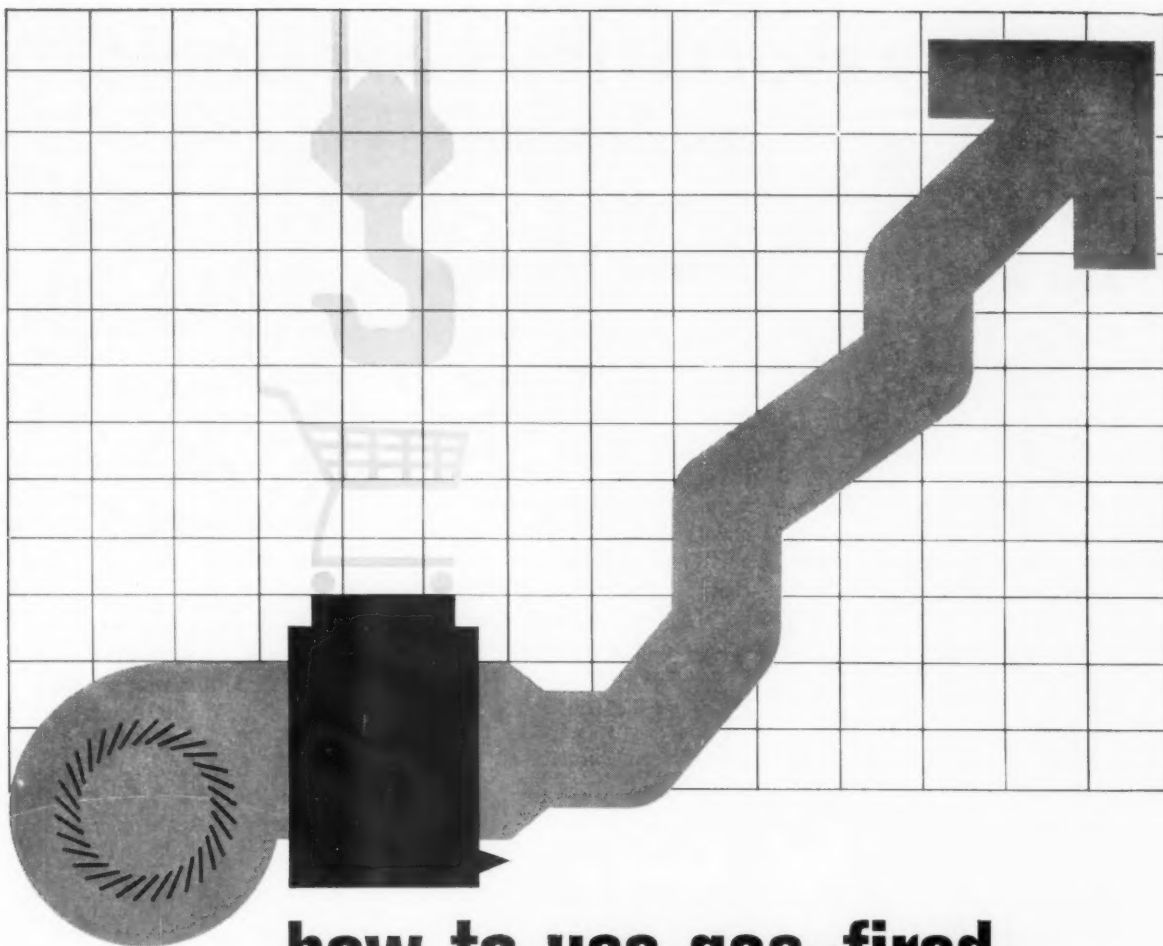
Free copies of the ARI Directory and "How to Buy Central Air Conditioning" are yours for the asking. Write to:



AIR-CONDITIONING & REFRIGERATION INSTITUTE

Department C-1113, 1346 Connecticut Avenue, N.W., Washington 6, D.C.

**Mr. George Rosen is President and General Manager of R & M Air-Conditioning Co., Inc. of Washington, D.C.*



how to use gas-fired duct furnaces most profitably



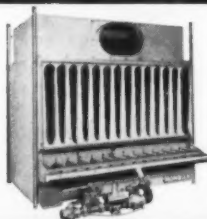
Free from Reznor: the third in a series of new Reznor Heating Handbooks, "Commercial and Industrial Applications of Duct Furnaces."

Duct furnaces offer a relatively new way of heating through air distributing systems. They provide all the economies of direct fired heaters, yet may be located at a distance from the space to be heated. Installation is easy — just connect gas pipe, power, and a vent.

To use duct furnaces most advantageously requires some knowledge of special considerations involved in specific commercial and industrial applications.

That's the purpose of this new handbook, published by Reznor, the world's largest manufacturer of gas unit heaters. It tells about the various ways Reznor duct furnaces can be used for heating or in combination with cooling systems. Also included are illustrations, load calculating data, and practical suggestions to help you get better heating at lower cost.

For your copy, mail the coupon to Reznor. And for more information on Reznor heaters, call your distributor or nearby district office listed in the Yellow Pages under "Heaters-Unit".



REZNOR HEATERS

REZNOR MANUFACTURING COMPANY
Dept. AA-11, Mercer, Pa.
*Send me a copy of "Commercial and Industrial
Applications of Duct Furnaces".*

name _____ title _____
company _____
address _____
city _____ state _____

WHAT ASSOCIATIONS ARE DOING

Omaha Silver Shield Class Sets Record

CLEVELAND — Omaha and Council Bluffs Indoor Comfort Bureau students recently set a new record, according to the National Warm Air Heating and Air Conditioning Association. All but one of the 56 taking the examinations passed, according to NWAHACA, and more than 70 percent scored in the nineties. The average grade for the bureau as a whole was 91.

High score honors were previously held jointly by New Orleans, La., and Youngstown, Ohio, with an average grade of 85. Jackson, Miss., students scored an average grade of 84.

Discuss Service Charges at Detroit Meeting

DETROIT — Service charges was the featured subject at a recent meeting of the Detroit Heating and Air Conditioning Association. With Albert L. Norris, Reliable Heating & Cooling, serving as moderator, members of a panel discussed such questions as: What should your hourly charge be? Can you justify your hourly service charge? Do your bookkeeping and other records give you a proper basis for setting a service charge?

Also discussed was the National Warm Air Heating & Air Conditioning Association's business management guide and the

possibility of holding classes on the NWAHACA manual. N. J. Biddle, secretary of the Detroit association, pointed out that the Macomb County Heating Association recently held such classes and that the Kalamazoo and Lansing groups were planning similar courses.

(Coming Events on page 80)

Collected Taxes Influenced Court

(Continued from page 68)

In the prevailing opinion, however, by which this decision was reversed it was asserted, in part, "It is said that taxes on the sale of about 50,000 units is based on this decision. The factor of horsepower in our opinion may have had some relation to size in the then stage of engineering development and size might well have been relevant to what was then a 'self-contained air conditioning unit.'"

In conclusion the court added, "Among engineers horsepower of a motor does not mean its nominal horsepower rating but means the actual horsepower which the motor will deliver continuously under its full normal load.

"The Court of Appeals did not reach that question nor review that fact in view of its conclusion that the horsepower test was not valid. Accordingly we remand the case to the Court of Appeals for the considering of that and any other question that may remain. And we add that our disposal is without prejudice to such action as the lower court may deem proper to prevent manufacturers or others, should they ultimately prevail, from obtaining the windfall by reason of taxes collected by them but not paid to the government."



GOLFERS WIN CHOICE PRIZES

CHICAGO — Prize committee for the annual golf outing of the Air Conditioning Contractors' Alliance examine the array of quality awards to be made. Committee was headed by executive secretary Theodore Criel (left) and president Al Verbeek. Low gross prize was won by Mickey Keefer, General Controls Co. Other prizes were awarded to Hank Repple, Flo-Rite Heating & Ventilating Co., who came closest to the pin, and B. Tracey, a guest, who turned in low net score

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THE SUPER-FEATURE LINE

Fan Models — Blower Models
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25,000 to 900,000 Btu's

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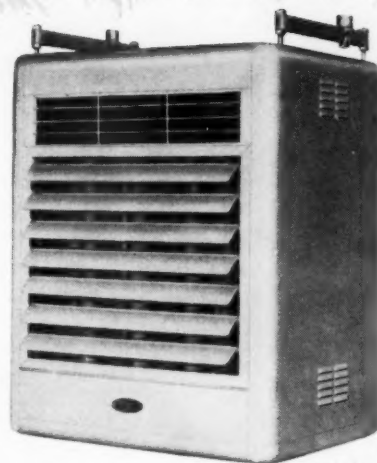
Industrial and Make-up Air Heating

Heavy 18 Gauge 100% Welded

Duct Furnaces AGA Approved
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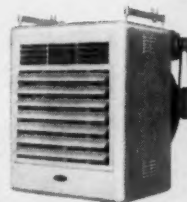
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Dual Fuel	Adjustable Air By-pass
Modulation	High Velocity Nozzles
2 Stage Valve	High Pressure Regulator
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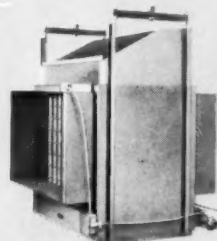
BLOWER MODELS

For extremely
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 Open or Enclosed
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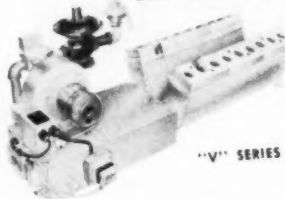


DUCT FURNACES

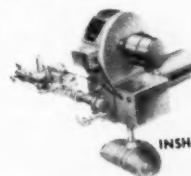
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 for any total capacity.
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"V" SERIES



INSHOT SERIES

- 400,000 up to 8,000,000 Btu.
- No Combustion Chamber Required
- Saves \$100 to \$500 On Every Job
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- Simple Control System
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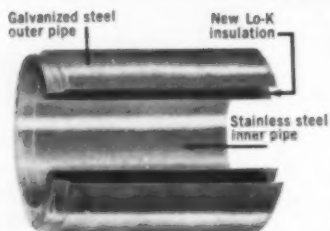


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- 2" of Lo-K insulation in 10-K has insulating value of 35" of brick.
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See your **RP** *Aprilaire*[®] wholesaler
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Coming Events

November

Nov. 26-29 — Northamerican Heating & Airconditioning Wholesalers, Inc., annual convention. Sheraton-Gibson Hotel, Cincinnati. W. R. Bull, executive director, 1220 W. Fifth Ave., Columbus 12.

December

Dec. 3-7 — National Association of Home Builders, annual convention and exposition. McCormick Place, Chicago. John M. Dickerman, executive director, 1625 L St., N. W., Washington 6, D.C.

1962

January

Jan. 29-31 — American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., semi-annual meeting. Chase Park Plaza, St. Louis. R. C. Cross, executive secretary, United Engineering Center, 545 E. 47th St., New York 17.

February

Feb. 4-7 — New York State Sheet Metal, Roofing and Air Conditioning Contractors' Association, annual convention. Manger Hotel, Rochester, N. Y. Clarence J. Meyer, executive secretary, 569 Genesee St., Buffalo.

Feb. 23-24 — Sheet Metal and Roofing Contractors' Association of Minnesota, annual convention. Spalding Hotel, Duluth, Minn. Howard D. Camitsch, executive secretary, 867 Grand Ave., St. Paul.

Feb. 12-15 — 12th Exposition of the Air-Conditioning, Heating and Refrigeration Industry. Great Western Exhibit Center, Los Angeles. George E. Mills, show director, Air-Conditioning and Refrigeration

Institute, 1346 Connecticut Ave., N. W., Washington 6, D.C.

Feb. 12-15 — Refrigeration and Air Conditioning Contractors Association, annual convention. Biltmore Hotel, Los Angeles. Joseph L. Koach, executive director, 20 N. Wacker Dr., Suite 2265, Chicago 6.

Feb. 19-22 — Annual Industrial Ventilation Conference. Kellogg Center, Michigan State University, East Lansing, Mich. James C. Barrett, Michigan Department of Health, Lansing 4, Mich.

Feb. 22-23 — Ohio Sheet Metal Contractors' Association, annual convention. Biltmore Hotel, Dayton, Ohio. William E. Favret, president, 55 Goodale, Columbus.

March

Mar. 5-7 — Sheet Metal Contractors' Association of Wisconsin, annual convention. Hotel Schroeder, Milwaukee. Robert S. Schmieder, executive secretary, 8320 W. Bluemound Rd., Milwaukee.

April

Apr. 8-12 — National Oil Fuel Institute, Inc., annual convention and exposition. Conrad Hilton Hotel, Chicago. Charles H. Burkhardt, managing director, Equipment-Technical Div., 60 E. 42nd St., New York 17.

May

May 12-18 — Sheet Metal and Air Conditioning Contractors' National Association, annual convention. On board the "Queen of Bermuda" en route to Bermuda. Leaves from New York City Saturday afternoon, May 12. J. D. Wilder, executive secretary, 107 Center St., Elgin, Ill.

NEW

FROM

bryant



OIL FURNACES

DESIGNED TO HANDLE
AIR CONDITIONING

NEW LOW PRICES

Call your local Bryant distributor or factory branch for prices and complete information on these two exciting new oil furnaces. Model 105-353, 105,000 Btu; Model 140-353, 140,000 Btu.

"HEART OF MARKET" DESIGN

These two new furnaces are designed to cover 93% of today's market for oil furnaces.

STYLED BY RAYMOND LOEWY

New, clean-lined styling in a smart, new color combination says "quality" at first glance.

COMPACT! Model 105-353. 22 1/4" x 26" x 51".





You've got all these features

WORKING FOR YOU !!!

NEW BASIC FURNACE. Upflow unit can be used as downflow or basement furnace by use of counterflow and drop duct kits.

NEW QUIETNESS. The Bryant blower (belt or direct drive) has been really engineered for quiet operation; the heat exchanger compartment is insulated for heat and sound.

NEW BLOWER. The big, powerful direct drive blower is (1) designed to handle air volume for both heating and cooling, and (2) it changes from winter to summer speeds at the flick of a switch on the thermostat.

NEW UNI-WELD CASING. Welded one-piece construction eliminates rattles, drooping corners, loose doors. It will support the whole duct system.

IMPROVED HEAT EXCHANGER. Rounded top and bottom heads streamline air flow in upflow and downflow units. Exclusive Air Deflector Baffle increases "heat wipe".

ENCLOSED burner and controls on *all* models. In large basement models you have two proven Bryant oil furnaces in Model 175-316, 175,000 Btu, and Model 280-308, 280,000 Btu.

Join up with

bryant

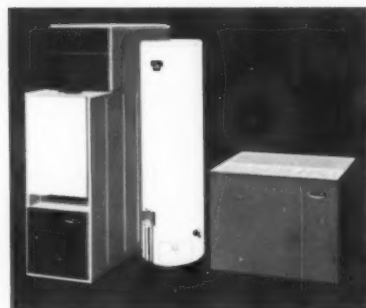
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NEW IDEA

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BRYANT HOME COMFORT CORE



On both remodeling and new house work, suggest Year 'Round Air Conditioning with a complete BRYANT HOME COMFORT CORE—furnace, air conditioner and water heater. Dealers tell us it's a lot easier to get the *extra* sale than they thought... that in 4 out of 5 cases an air conditioner buyer wants a new furnace too. The Home Comfort Core idea appeals to home owners and builders alike.

For your builders—large or small—Bryant has a down-to-earth Home Comfort Core Merchandising Program to help them move their houses faster, and get you *extra* business! Builders want this help.

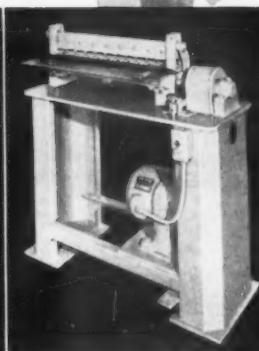
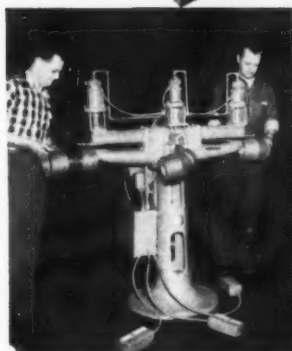
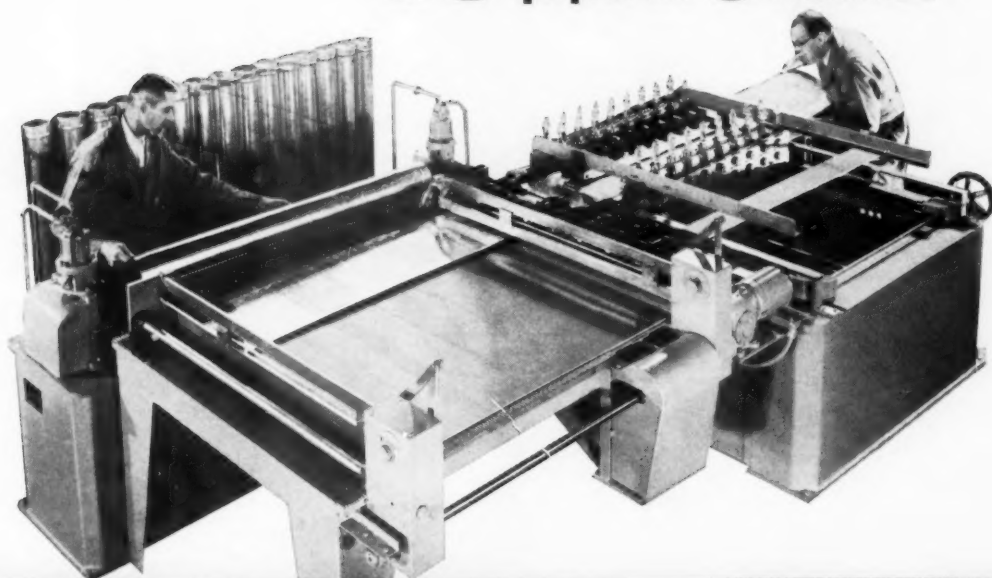
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**This complete line
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- G-924 Panel-Type Snap-Lock
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Maplewood engineers transfer panels automatically with a new intermediate feed table between the panel snap-lock roll-forming machine and the roll. Automatic transfer permits the roll former and roll to operate at maximum high speeds. Production increases accordingly, reducing cost per pipe section drastically.

Ask a Maplewood engineer to quote on your production requirements, and then make any comparisons you desire. The results will show the definite advantages of buying Maplewood equipment.



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Complete Roll Forming Production Lines

ROCKFORD MACHINE TOOL CO., ROCKFORD, ILLINOIS

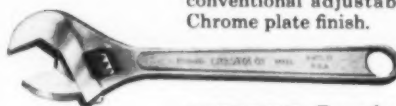


GRIP this Crescent adjustable wrench. Feel its perfect balance...its comfortable weight. Shake it...there's no rattle or clank. Slide your thumb across the knurl. See how easily and precisely the jaw moves from "closed" to "full-open" without a hitch.

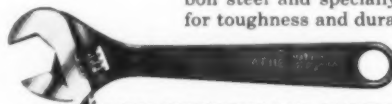
These are the obvious things that tell you this is a Crescent wrench. Not so obvious (but there just the same) is the infinite care that goes into its manufacture. No less than eighty separate and painstaking steps are taken in producing this tool...from the first ear-splitting sock of the drop hammer on white-hot steel alloy to the final hand-polishing and individual strength test.

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CRESTOLOV. Forged of super-hard Crestoloy Steel. 200% stronger than conventional adjustable wrenches. Chrome plate finish.



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BOTH CRESCENT AND CRESTOLOV WRENCHES CARRY THE SAME CRESCENT GUARANTEE OF LASTING QUALITY.

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CRESCENT TOOLS
Give Wings to Work

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EQUIPMENT DEVELOPMENTS

INFORMATION on capacities, dimensions, applications, and special features in each Equipment Development item is presented in accordance with material furnished by the manufacturers.

Coil Circuiting Provides Refrigerant Sub-cooling

AIR COOLED condensing unit (HSA2-1103), 11 tons nominal cooling capacity, employs large condenser air volume and special coil circuiting to gain maximum capacity. The coil circuiting provides a sub-cooling benefit which delivers liquid refrigerant to the evaporator up to 20 deg cooler than the condensing temperature, according to the manufacturer.

The resiliently mounted compressor is statically and dynamically balanced and has lightweight aluminum pistons and rods. A full force-feed lubrication system is provided as well as ambient compensated overload protection for the motor windings. Protection against "slugging" is afforded by a crank-case heater or "oil rectifier."

The unit may be serviced by removing either end panel and electrical and refrigerant connections are made at central locations on the condenser side of the cabinet. A liquid line dryer is furnished as standard equipment. A tall, vertical, small-diameter receiver is equipped with a purge valve and two liquid-level valves.

The cabinet is fabricated of 16 ga panels, 14 ga corner panels

and 10 ga base rails and cross members. All panels are finished in thermo-setting acrylic enamel — *Lennox Industries Inc.*, 200 S. 12th Ave., Marshalltown, Iowa

Nibbling Machine Adds Profile Attachment

A PROFILE cutting attachment has been developed for powered nibbling machines. The profile attachment can be installed or removed from the company's Model P machine in a matter of minutes. It is designed for duplicating template shapes or cutting circles, rectangles, square holes, slots, rings, and hole punching. It can also be used for holding large panels for metal doors. The profile attachment

moves in any direction on smooth running ball bearings — *The American Pullmax Co., Inc.*, 2455 N. Sheffield Ave., Chicago 14, Ill.

Rivet Gun Extended With Two More Sizes

TWO ADDITIONAL series of rivets can be used in the "Snapo" rivet gun without having to make adjustments or changes in the jaw of the tool. The series are in the 5/32 and 3/15 in. sizes, and feature the aluminum rivet with a steel mandrel, flat head type, offered in several different lengths for varying work thicknesses. For blind and non-blind applications, all sizes can be used without adjustments in the gun — *Richline Co., Inc.*, 1531 E. Franklin Ave., Minneapolis, Minn.

Changeover Panel Adds Mild Weather Setting

FOR USE ON year 'round air conditioning systems, the "Zone-A-Trol" heating-cooling control panel and selector switch permits switchover from heating to cooling cycle and back again by setting the selector switch to the cycle desired. The control makes the changeover automatically.

For mild weather ventilation, the selector switch and control

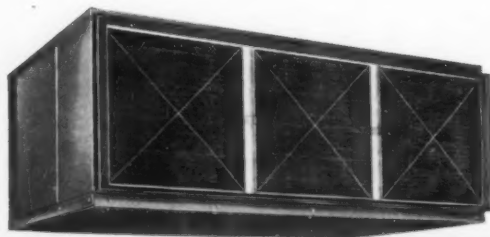
(Continued on page 88)

Other Departments

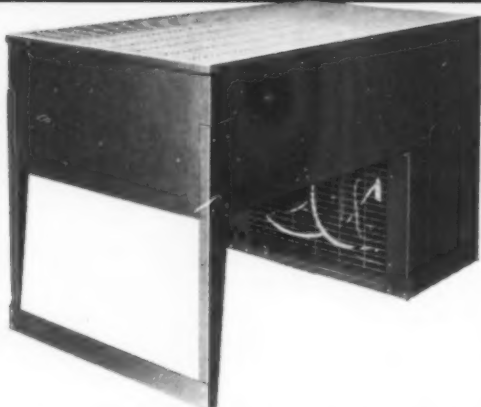
- New Trade Literature105
- We Hear That111
- Merchandising Ideas112
- Appointments.114

NOW... *Luxaire*®

**Light Commercial
and Industrial**



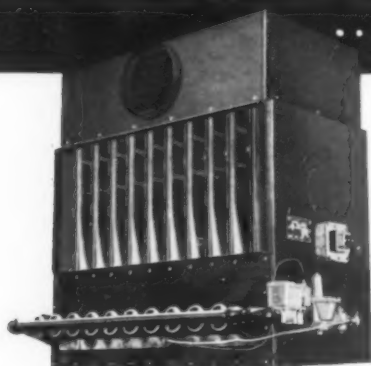
AIR CONDITIONING...



Blower-Coil Air Handling Unit — 8, 9 or 10 Ton — Available now, A.R.I. Certified: 93,000 or 114,000 Btuh with one 8 or 10 Ton Condensing Unit — 93,000 or 114,000 Btuh with two 4 Ton or two 5 Ton Condensers — 103,000 Btuh with one 4 and one 5 Ton Condensers. Heavy construction, uncomplicated design. Twin Blowers for high air deliveries. Standard equipment Filter Rack and High Velocity Filters. Weld Nuts for easy suspension.

Air Cooled Condenser-Compressor Units — 8 and 10 Tons — 8 Ton size available now, A.R.I. Certified. Compressor Section shipped separate from Condenser Section — each with holding charge and mating connectors. Easily installed on roof or at grade level. Upward Condenser discharge at low velocity from Twin Fans having "Mild Weather" Control. 16 Gauge Zinc Coated Cabinet and Plastic Coated Grilles for outdoor installation. 10 Ton size available March, 1962.

...HEATING FOR '62



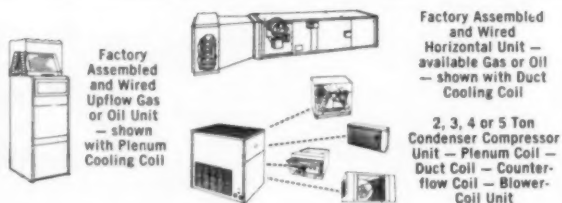
Gas Fired Duct Heaters — 100,000, 150,000, 200,000, 250,000 Btuh — Available January, 1962, A.G.A. Approved for installation downstream from cooling coil. Aluminized Steel Heating Element and Condensate Drain. Gas Controls on either side. Manifold on one end and Flue Outlet on opposite — or both on same end. Weld Nuts for easy suspension. Unexcelled for combination with new Luxaire Air Handling Units.

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THE **DEPENDABLE** FIBRE DUCT that's easier to install

In slab perimeter heating and cooling, do you want to hold down costs while maintaining high quality? Do you want dependability you can count on, in a system that's easily and quickly installed? Then you want SONOAIRDUCT Fibre Duct for your next slab perimeter job!

Year after year, SONOAIRDUCT has been America's best selling Fibre Duct —proving its dependability in thousands of installations. And, aluminum foil-lined SONOAIRDUCT meets or exceeds *all* F.H.A. criteria and test requirements for products in this category.

This low-cost, lightweight fibre duct saves you time, labor and money too! Easy-handling SONOAIRDUCT joins and levels quickly... can be cut to length or mitered with a hand saw. There are no sharp edges, and it won't chip, crack or break when dropped—every piece is usable!

To protect your reputation, your profit margin, *and* the interests of your customers, always install Sonoco SONOAIRDUCT—the **BEST** in Fibre Duct. Available in 22 sizes, 3" to 36" I.D., standard 18' lengths. Special sizes to order.



FREE INSTALLATION MANUAL

Contains latest, detailed, step-by-step installation data for SONOAIRDUCT Fibre Duct. For free copy, send us your name and address on company letterhead.

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MILWAUKEE Shear provides clear view of blade for greater accuracy. Cuts to $\frac{1}{8}$ " radius on left hand curves, 1" on right hand curves.



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Electric Shear

- ★ Cuts 16 gauge cold rolled steel . . . 17 gauge stainless, galvanized sheet, aluminum and monel metal
- ★ High speed . . . 3800 strokes per minute
- ★ Cuts close curves, right or left . . . won't distort metal
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- ★ Clear visibility . . . unobstructed line of sight
- ★ Exclusive cutting action
- ★ Weighs only 5 $\frac{1}{4}$ lbs. . . perfectly balanced

See your MILWAUKEE Distributor, or send for detailed bulletin SH-1.



look under "tools — electric"



MILWAUKEE ELECTRIC TOOL CORP.
5352 WEST STATE STREET, MILWAUKEE 8, WISCONSIN

equipment developments

panel provide for the control of a separate ventilating damper actuator which may be installed in a ventilating duct connected to an outside air source and will open when the selector switch is in the "off" position. All dampers are adjusted to provide fresh air during mild weather operation. — *Econo Products Co., Div. of Viking Instruments, Inc., East Haddam, Conn.*

Compact Furnaces Have Curved Heat Exchanger

EIGHT COMPACT gas-fired horizontal furnaces are offered in the "Weathermaker" line. Dimensions are 19 $\frac{5}{8}$ x 27 $\frac{7}{8}$ x 42 $\frac{1}{2}$ in. (44 $\frac{1}{2}$ in. in height in the cooling models); weights range from 120 to 200 lb.

According to the manufacturer, compact size is made possible by a curved steel heat exchanger which offers more surface and is swept by air from two blower openings instead of one. The exchanger is coated with a heat resistant aluminum and ceramic material.

The blower and motor can be serviced from either side. Four models have Btuh capacities of 30,000, 100,000, 105,000, and 125,000. A second 125,000 Btuh model has still higher air handling capacity. All can be equipped with the company's encased horizontal cooling coils. Three other models of 30,000, 100,000, and 125,000 Btuh capacity are for heating only — *Carrier Air Conditioning Co., Div. of Carrier Corp., Carrier Parkway, Syracuse 1, N. Y.*

Multiple Circuit Tester Used by One Mechanic

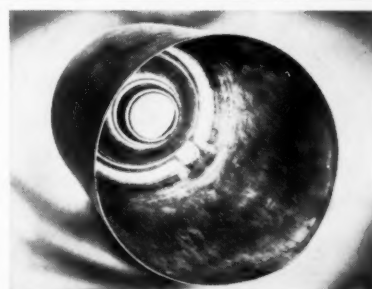
CABLE TRACER enables one mechanic to trace up to ten pairs of circuit conductors without assistance. The device is six inches



Here's proof that USS Galvanized Steel Sheets have exceptional workability—twist and bend, and the zinc coating won't flake off.



USS Galvanized Sheets make excellent ductwork. They're strong and rigid. Lock joints stay tighter. Installation is quick and easy.



This "container" of USS Galvanized Steel illustrates the outstanding formability and drawing characteristics of the metal.

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ARKLON

PRODUCTS CO.
P. O. BOX 3501 - A
CLEVELAND 18, OHIO

equipment developments

(Continued)

long and fits into the tester's hand. It contains 10 numbered station blocks and is self powered. Wires at stations are inserted into marked clips. Mechanic then inserts conductor leads at main junction panel into tracer box, pushes a switch and a lighted number will identify the circuit. Shorted or open circuits are also identified by built-in tests that are performed simultaneously with the identifying test. Weight is 11 ounces. Comes with leather carrying case — Pyramid Instrument Corp., 630 Merrick Rd., Lynbrook, N. Y.

Pneumatic Clip Punch Fastens Standing Seams

PNEUMATICALLY operated clip punch for joining standing seams and government lock sections for ductwork. Will clip three sheets of 22 ga galvanized metal at 85 psi or three sheets of 20 ga at 100 psi. Lock is completed in one operation by thumb pressure on two air valve buttons located next to the handle grips. Weight is 20 lb. Recommended shop installation includes trolley boom to permit punch to swing over work — Thor Tool and Die Co., 865 Estabrook St., San Leandro, Calif.

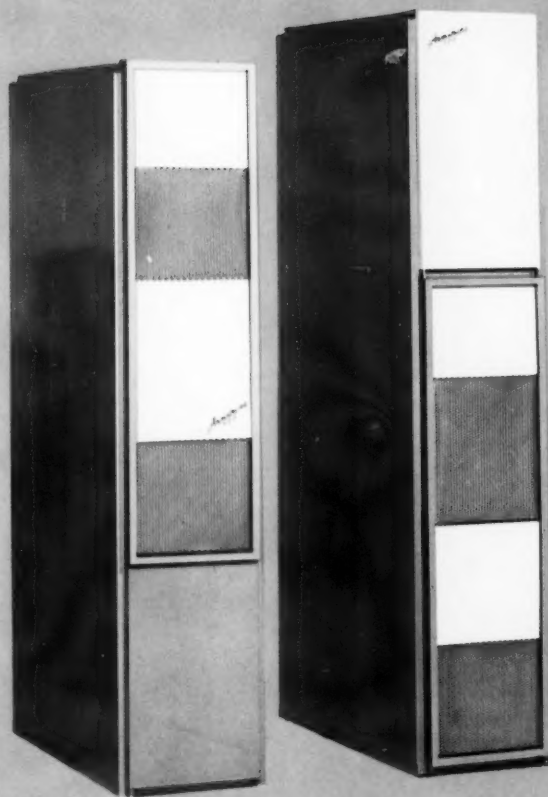
Roll Filter Media Loading Simplified

ROLL-TYPE, horizontal media, air cleaner, "Roll-Kleen", is available with automatic (motorized and controlled operation) or manual drives, with or without media covers on either or both ends, and is manufactured in 84 standard sizes. Features also include reduction in the number of moving parts and a simplified method of media loading. Model H-5 is designed for installation in locations where headroom is at a premium and in a variety

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700 series

- 12 UP-FLOW MODELS
60,000 to 160,000 B.T.U.
- 8 COUNTERFLOW MODELS
60,000 to 160,000 B.T.U.
- 10 BASEMENT MODELS
80,000 to 160,000 B.T.U.



HERE'S
WHY

homeowners, home builders and heating contractors prefer the
Armstrong 700 Series for all home heating applications

NEW HIGH STYLING

Clean, slim styling in green, gold and white adds a touch of distinction to any decorating scheme . . . is perfectly in place in any basement or utility room.

NEW COMPACT DESIGN

More space for living. Greater freedom of choice on furnace location. Lower installation costs. These are the pay-off on the unusually compact design of the Armstrong 700 Series.

Basement models stand only counter-top high yet require no more floor space than most full-height basement models. Up-flow and counterflow models in the smaller capacities require a floor area only 12" by 25½" . . . and the very largest a space only 26" by 29½".

Smaller flue connections, a full inch smaller than on most furnaces of comparable capacity . . . mean further savings on installation thru substantial reduction of chimney costs.

NEW HIGH STANDARDS OF PERFORMANCE

Performance was not sacrificed to achieve compact design or fine styling in the 700 Series. Armstrong

engineers have set new standards for styling and size with furnaces which are unexcelled for efficient, economical, maintenance-free operation.

SAME FINE QUALITY

In materials, components and craftsmanship, Armstrong 700 Series furnaces maintain or exceed the exacting standards which have made "Armstrong" the by-word of quality in warm-air heating.

FABULOUS NEW PRICES, TOO

In design, performance and quality of construction Armstrong 700 Series gas-fired furnaces offer a combination of advantages not available in other furnaces at any price — yet they are priced to compete with units which have far less to offer.

For prices and details on Armstrong's complete line of gas-fired home heating equipment . . . including the 700 Series plus gas horizontal and gravity models and conversion burners . . . write to the Armstrong Furnace Company, 851 West Third Avenue, Columbus 12, Ohio



Manufacturers of a complete line of gas, oil and coal-fired furnaces and air cooled summer air conditioners.



SWORDS OF DAMOCLES

Every editor of a businesspaper, like the King's courtier of Greek legend, lives with a sword of Damocles suspended over his head.

Some of them have it tougher—they live with thousands of them. One for each subscriber.

The under-one-sword editor has things a bit easier—his publisher holds the sword, and readers don't get much chance to use it. These are the papers whose recipients pay no subscription price, but get the publication more or less over the transom.

The paid circulation papers, on the other hand, give each subscriber the opportunity to drop the sword—and if too many of them do, things get pretty painful for the editor—and the publisher.

But the system has its compensations, too: this kind of editor has to be on his toes all the time. His publication has to be good—or else. So the advertiser using such a publication can be pretty sure its readers want it—and keep on expressing their approval year after year by renewing their subscriptions.

To find this kind of businesspaper in practically any field, simply look for this symbol:



The plus value of paid circulation is "wantedness"

equipment developments

(Continued)

of positions regardless of the direction of air flow. Media movement can be in either direction — *Farr Co., P. O. Box 90187, Airport Sta., Los Angeles 45, Calif.*

Directional Diffuser Uses Snap-in Flange

ALL-EXTRUDED aluminum directional diffuser, Type D, has internal dampers. It is available in five frame styles and fourteen core patterns. All cores are removable and interchangeable. Square and rectangular designs include one-way flow, two-way opposite flow, three-way flow and two-way corner flow. Comes with snap-in, bevelled, drop collar, flange and lay-on frames — *Waterloo Register Co., Inc., P. O. Box 147, Waterloo, Iowa*

Adjustable Collar Flue Gas Vent Cap

FOUR VENT CAP models with adjustable collars to fit 2 7/8 through 11 in. double-walled, single-walled and asbestos-cement type roof terminated gas vents. *VersaCAP* has been designed to prevent downdrafts, is bird proof, and clog proof from debris, snow and ice. It is available in either corrosion resistant aluminum or galvanized steel — *Leslie Welding Co., Inc., 11241 W. Melrose St., Franklin Park, Ill.*

Color Code Identifies Standard Filter Sizes

GLASS FIBER "AMER-glas" furnace filters are treated with hexachlorophene to help fight bacteria, and feature color-coding for ease in identifying the different sizes of filters. Designed to provide more dirt catching efficiency, the glass fiber filter-



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All any business concern needs to do is to cooperate in NIMS — NATION-WIDE IMPROVED MAIL SERVICE — a

cooperative program now underway and sponsored by the United States Post Office.

PRINCIPAL FEATURES:

- ✓ Encouraging large-volume mailers to schedule their mailings so they can be handled in the order of importance to them.
- ✓ Greater emphasis on pre-processing of mail in the mail rooms of large mailers.
- ✓ Continuing emphasis on "Mail Early in the Day" and other patron cooperation programs.

THE KEY TO THIS PROGRAM

The scheduling of mail — so that it moves in an orderly manner around the clock.

Under this cooperative program, big mailers would separate their priority mail from non-priority mail. The urgent business letters would go in one pile — and the remaining bulk of the firm's mail — bills, notices to stockholders, receipts, advertising material sent first class, etc. would go in the other.

Then the much smaller piles of priority mail would be "worked" in the local post office and dispatched posthaste early the same evening.

Next morning, first thing, the remaining large quantities of non-priority mail will be worked at an uncluttered post office.

Although the non-priority mail actually will be withheld and deposited the next morning, the NIMS program will place priority mail "in line" in order of importance to sender and addressee, with resulting benefits of speedier delivery.

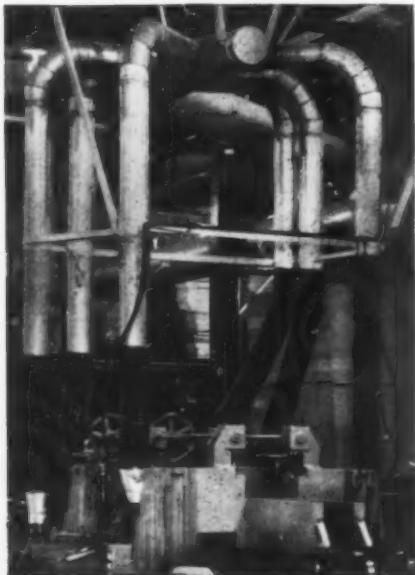
INVESTIGATE YOUR COMPANY'S MAILING PROCEDURES NOW. BY FOLLOWING NIMS YOU WILL BE CONTRIBUTING TO BETTER, FASTER MAIL SERVICE FOR ALL.

(This advertisement run in the interest of better postal service by)

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equipment developments

(Continued)

ing media is spun with progressing density from one side to the other. Five colors are used to identify filter sizes — *American Air Filter Co., 215 Central Ave., Louisville 8, Ky.*

Controls Differ For Plate Type Gas Burners

ADDITIONS HAVE been made to the "Spread Heat" line of plate type upshot gas burners to produce greater Btuh capacity. The line is now made up of five models offering a delivery range from 50,000 to 1,000,000 Btuh.

Three different types of controls will be available for these units: 1) Standing pilot, with 24-v automatic gas valve and transformers, runner lighter ignition; 2) Constant electronic, with 115-v automatic gas valve, runner lighter ignition, electronic relay and constant pilot; 3) Intermittent electronic, 115-v automatic gas valve, automatic spark ignition with 6000-v transformers, electronic relay and intermittent pilot — *The Barber Mfg. Co., 1052 E. 134th St., Cleveland, O.*

Commercial Heat Pump With Separate Sections

SEPARATE INDOOR and outdoor heat pump sections with 15 ton nominal capacity have been designed to match applications with varying load conditions. The outdoor section has a low silhouette, 20 3/4 in. high, with legs that can be adjusted to heights of 12 or 18 in. At 95 F outdoor temperature and 67 F wet bulb indoors, the heat pump produces 173,000 Btuh of cooling. At 40 F outdoor temperature and 70 F indoors, it produces 162,000 Btuh of heating. As many as three accessory electric heaters of 19.1 kw each may be mounted on the fan deck. A defrost



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We are occasionally asked by our manufacturer advertisers to suggest the names of manufacturers' agents in various sections of the country whom they can contact in regard to representation of their residential and small building heating, air conditioning sheet metal products.

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6 North Michigan Avenue
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equipment developments

(Continued)

cycle occurs every 60 minutes when outdoor temperatures require it.

An exclusive control circuit prevents rapid cycling. Refrigerant subcooling enables the outdoor unit to be located as much as 60 ft above or below the indoor unit.

The indoor section can be used with or without ductwork and has a matching plenum for free discharge of air. Without plenum and with the fan section on top, the unit is 80 in. wide, 63½ in. high, and 29¼ in. deep. With fan section mounted on the back, the dimensions are 80 x 46 x 52 in. respectively. The cabinet can be mounted vertically or horizontally, suspended from a ceiling or floor mounted — *Carrier Air Conditioning Co., Div. of Carrier Corp., Carrier Parkway, Syracuse 1, N. Y.*

Belt-driven Axial Fan Available in 11 Sizes

BELT-DRIVEN vane axial fan, 60 in. diameter, will move 96,450 cfm at 2 in. static pressure (98.3 bhp) or 66,500 cfm at 7 in. static pressure (116.7 bhp). The line now includes belt-driven models in 11 sizes, 12 to 60 in., and direct-drive models in 6 sizes, 18 to 42 in. Construction features common to all models include precision finished cast aluminum-alloy impellers and all welded construction, with guide vanes welded to both inner and outer shells — *Hartzell Propeller Fan Co., Piqua, O.*

Combine Electric Water Heater and Work Table

SPACE-*SAVING* "Table-Top" electric water heater, available in 30, 40, and 50 gal. sizes, is designed for use where water heating equipment cannot be installed in the usual locations. The unit is 36 in. high.

Features include a one-piece



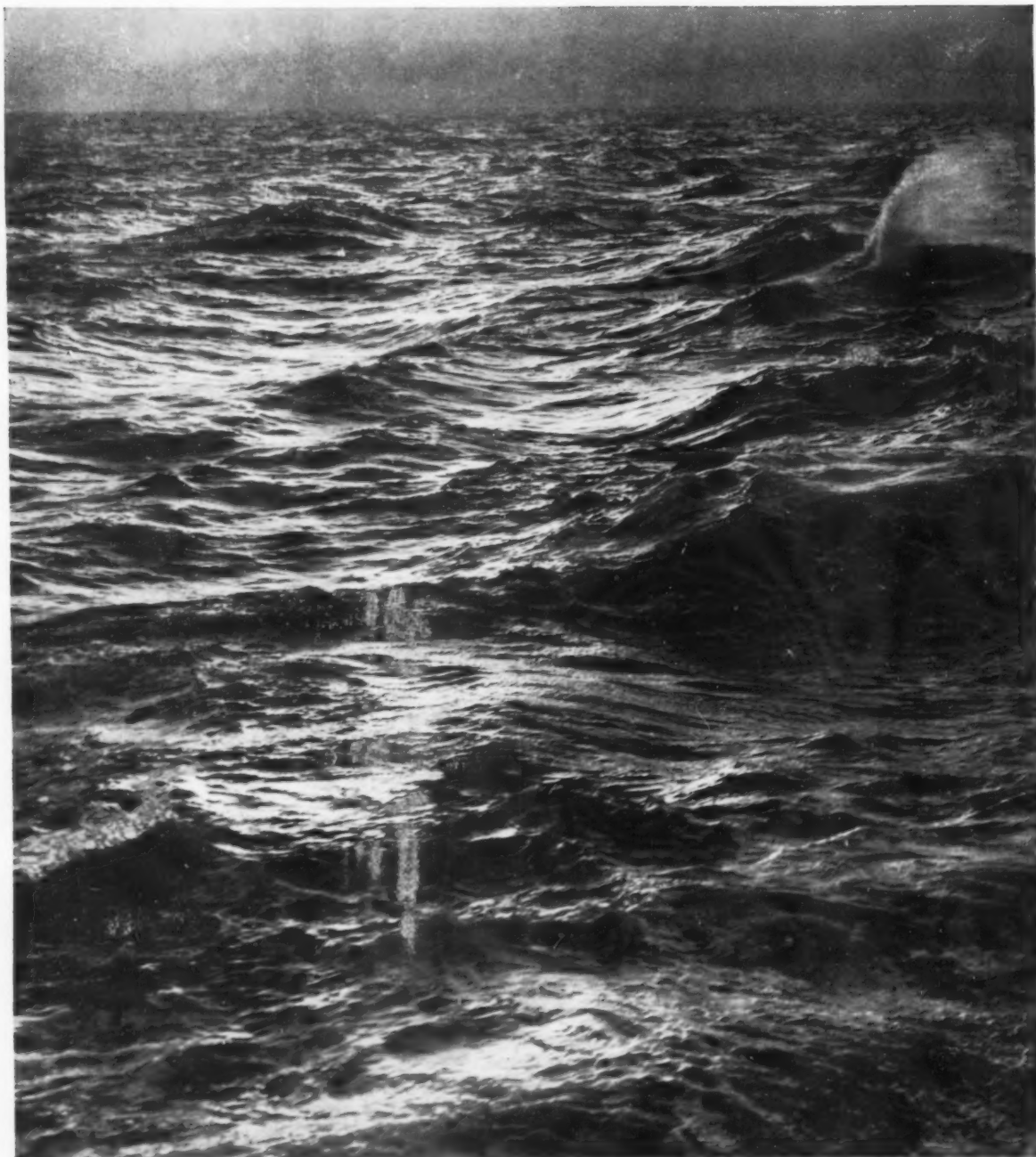
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Take advantage of the many ways in which your business can grow. In the lucrative export markets. In new U.S. markets. In creating new products and services. In developing your community. For expert help, just write or phone any U.S. Department of Commerce field office or write Commerce, Washington 25, D.C. They'll help you grow with America!



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equipment developments (Continued)

porcelain top with back splash and a durable white enamel finish that is both acid and heat resistant, all welded heavy duty glass-lined tank, with "On Guard" magnesium anode for additional tank protection. The cabinet has glass fiber insulation. The unit is available with either interlocking or parallel circuits, 220 volts, single phase—*Pioneer Mfg. Co., 3131 San Fernando Rd., Los Angeles 65, Calif.*

Furnace Offers Choice Of Blower and Filter

A SPACE SAVING counterflow gas-fired furnace is available in three sizes: 80,000, 100,000, and 120,000 Btuh. The unit measures 51 in. high, 26 in. deep, and 16 3/16 or 20 3/16 in. wide (depending on capacities). Each size is available in either a straight heating model or for combining with a summer air conditioning unit. The summer air conditioning model is equipped with a blower capable of delivering higher air volumes and has permanent type filters—*Day & Night Mfg. Co., 855 Anaheim-Puente Rd., La Puente, Calif.*

Four Models Expand Duct Furnace Line

MODULAR DUCT furnace line (DS Series) has been expanded with the addition of four capacities. Furnaces are rated at 175,000, 225,000, 275,000, and 350,000 Btuh input. Other sizes have input capacities of 150,000, 200,000, 250,000 and 300,000 Btuh.

All eight sizes in their standard models are AGA approved for installation downstream from cooling coils in year 'round air conditioning systems, and are approved for temperature rises ranging from 20 to 100 F. Modulating input ranges down to 20 percent.

All standard furnaces are equipped with condensation shields



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Abarry Steel Company, Perth Amboy, New Jersey
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 Benedict Miller, Inc., Lyndhurst, New Jersey
 Fisher Bros. Steel Corp., Englewood, New Jersey
 International Corporation, Hulsde, New Jersey
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Chicago Steel Service Company, Chicago 32, Illinois
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 The Ohio Metal & Manufacturing Co., Dayton 2, Ohio
 Voys Brothers, Inc., Columbus 8, Ohio
 Williams and Company, Inc., Cleveland 14, Ohio
 Cincinnati 29, Ohio
 Columbus 8, Ohio
 Toledo 12, Ohio

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 Hubbell Metals Inc., Kansas City 16, Missouri
 St. Louis 3, Missouri
 E. M. Jorgensen Company, Wichita, Kansas
 Marsh Steel Corporation, Wichita, Kansas
 North Kansas City 16, Missouri

SOUTH ATLANTIC STATES

Eagle Roofing and Art Metal Works, Inc., Tampa, Florida
 Reynolds Aluminum Supply Company, Jacksonville, Florida
 Miami, Florida
 Tampa St. Petersburg, Florida
 Atlanta 1, Georgia
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 Raleigh, North Carolina
 Richmond, Virginia
 J. M. Tull Metal and Supply Co., Inc., Jacksonville, Florida
 Miami, Florida
 Tampa, Florida
 Atlanta 2, Georgia
 Atlantic Steel Company, Atlanta 1, Georgia
 Hubbell Metals Inc., Marietta, Georgia
 Hill Chase Steel Company of Maryland, Baltimore 3, Maryland
 Vance Iron and Steel Company, Charlotte, North Carolina
 Dominion Culvert and Metal Corp., Roanoke 5, Virginia

EAST SOUTH CENTRAL STATES

Atlantic Steel Company, Birmingham, Alabama
 Reynolds Aluminum Supply Company, Birmingham, Alabama
 Louisville, Kentucky
 Memphis, Tennessee
 Nashville, Tennessee
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 Memphis, Tennessee
 Williams and Company, Inc., Louisville, Kentucky
 Mid State Steel, Inc., Nashville, Tennessee
 Siskin Steel and Supply Company, Inc., Chattanooga, Tennessee
 Vance Iron and Steel Company, Chattanooga, Tennessee

WEST SOUTH CENTRAL STATES

Hammond Sheet Metal Company, Fort Smith, Arkansas
 Little Rock, Arkansas
 Marsh Steel Corporation, Baton Rouge, Louisiana
 E. M. Jorgensen Company, Tulsa 5, Oklahoma
 Dallas 22, Texas
 Houston 1, Texas

MOUNTAIN STATES

Ducummet Metals & Supply Co., Phoenix, Arizona
 E. M. Jorgensen Company, Denver, Colorado
 Phoenix, Arizona
 Marsh Steel Corporation, Denver 16, Colorado
 Pacific Metal Company, Boise, Idaho
 Structural Steel and Forge Co., Salt Lake City, Utah

PACIFIC STATES

Allen Fry Steel Company, Los Angeles, California
 Ducummet Metals & Supply Co., Berkeley 10, California
 Los Angeles 54, California
 National City, California
 Seattle 6, Washington
 E. M. Jorgensen Company, Los Angeles 54, California
 Oakland 23, California
 Seattle 24, Washington
 American Steel Warehouse Co., Portland 14, Oregon
 Pacific Metal Company, Portland 9, Oregon
 Seattle, Washington

CANADA

Drummond McCall and Co., Ltd., Toronto, Ontario
 Montreal, Quebec



REPUBLIC Stainless Steel
 REPUBLIC STEEL • CLEVELAND 1, OHIO

equipment developments

(Continued)

for burner protection, hooded pilots, and drain pans with pipe connections.

Normally equipped with 115-v controls, DS series duct furnaces also may be converted to 24-v operation and to 230-v wiring — *Reznor Mfg. Co., 6 Union St., Mercer, Pa.*

Compact Unit Expands Sectional Furnace Line

A COMPACT 50,000 Btuh input gas-fired winter air conditioning furnace has been added to the complete line of "Moncrief" sectional gas-fired units. With the addition of the model No. Sh-50, this line is now available in 7 capacities to 200,000 Btuh in steps of 25,000 Btuh.

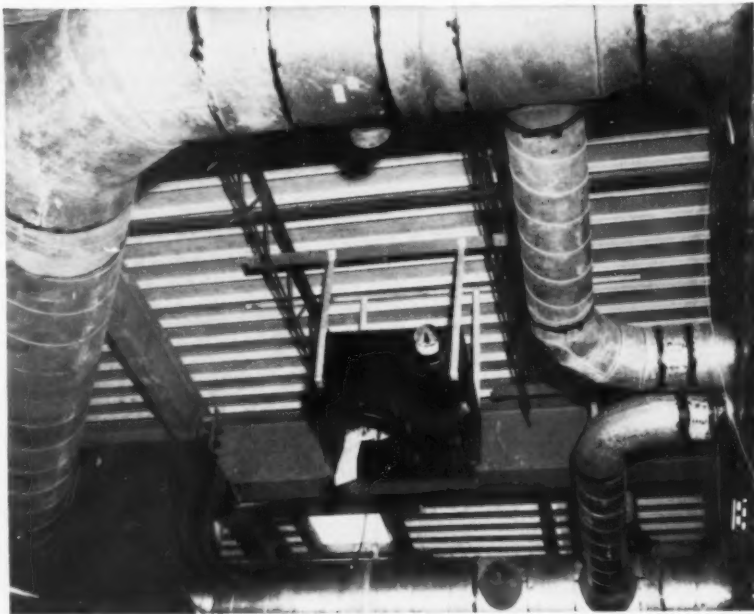
Measuring 12 x 26 x 54 in., the unit is completely assembled and wired at the factory and features a heavily constructed 16 ga. end-welded steel heat exchanger. A rigid cabinet completely encloses and conceals the gas manifold, burners, and controls.

The unit is available with either a belt-driven or direct-drive blower. The standard 9 in. belt-driven blower, when equipped with a properly sized motor, will provide air deliveries for up to 2 tons of cooling against 0.5 in. of water external static pressure, according to the manufacturer.

Bottom air intake is standard. Side air intake with an accessory slide-out filter frame, which is installed inside the cabinet is optional — *The Henry Furnace Co., Medina, O.*

Air Cooled Condensing Unit for Roof Location

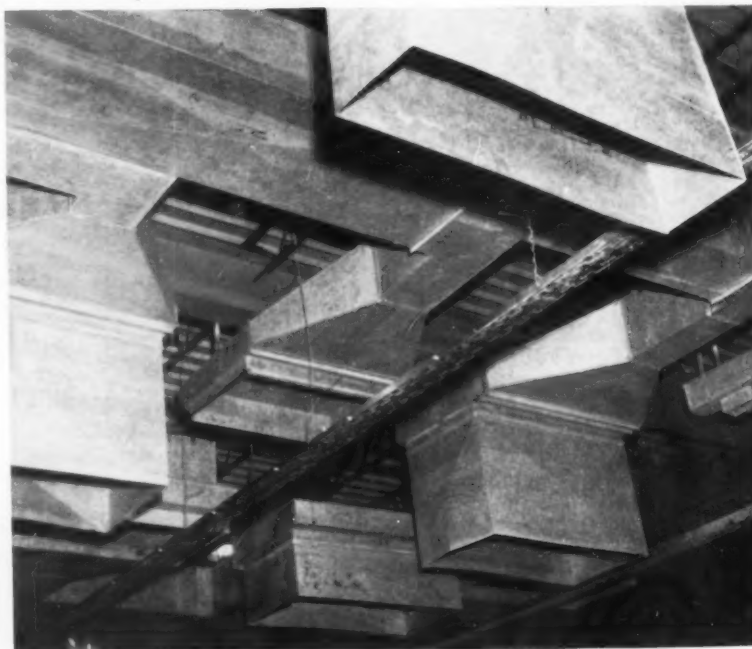
REMOTE AIR COOLED condensing units in 90,000 and 118,000 Btuh capacities, designed primarily for commercial and industrial rooftop installations, have a low sil-



Wide variety of shapes, sizes, and types of ducts poses no problem for versatile Armco ZINCGRIP Steel. Zinc coating remains intact through severest forming operations.

New steels are
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Armco

TOUGH DUCT ARMCO





JOBS MADE EASY WITH ZINGGRIP STEEL

No duct job is too tough to fabricate from Armco ZINGGRIP® Steel. Unusual shapes and configurations can be fabricated easily with no danger of flaking the tightly-adhering zinc coating. Applied by the continuous hot-dip method developed and perfected by Armco Research, the coating will take as much forming as the base metal.

Corrosion resistance of zinc coatings in this application is outstanding. Forty-three-year-old zinc-coated ducts recently uncovered in Armco's General Office building were in excellent condition.

For complete information, call your nearest Steel Service Center that stocks Armco ZINGGRIP Steel. If you aren't already acquainted, we'll gladly put you in touch with him. Just write **Armco Division, Armco Steel Corporation, 2551 Curtis Street, Middletown, Ohio.**



Steel for strength, durability, economy



Armco Division

equipment developments

(Continued)

houette design; the overall height is approximately 51 in. Condenser is mounted horizontally to decrease the height.

Air discharge is upward, from a large diameter belt-driven fan with quiet low speed operation. The weatherproof casing is heavy gage, embossed aluminum reinforced with steel. Weight of the Model 96 AR-3 is 800 lb; of the 120 AR-3, 1100 lb.

Installation is simplified by shipment in two sections. Accessory motor and drive kits provide a full range of air delivery requirements — *Day & Night Mfg. Co., 855 Anaheim-Puente Rd., La Puente, Calif.*

Waterproof Coupling for Asbestos-cement Duct

"DUCTITE COUPLING," for use with Transite Air Duct, assures a water-tight joint when used with the company's asbestos-cement duct. Designed to meet revised FHA requirements, the coupling is a reinforced product using inorganic asbestos, bonded with waterproofing ingredients that make a strong, tight seal. It is highly resistant to corrosion, as well as being fungus and termite-proof. Couplings are available in Transite Air Duct sizes of 3, 4, 5, 6, 7, 8, 10, and 12 in. — *Johns-Manville, 22 East 40th St., New York 16, N. Y.*

Plenum Compartments For Cooling Coils

NEW COOLING COIL case for its horizontal furnace line will accept the same V type coil used on its highboy and counterflow forced air furnaces. According to the manufacturer, this makes a single type of coil applicable for most residential air conditioning jobs, whatever the type of heating installation involved. Coil cases are

equipment developments

(Continued)

shipped knocked down in easily stocked cartons.

The case for the horizontal furnaces is the 48/60 DNH, which accommodates the company's 48,000 and 60,000 Btuh capacity VC coils. Introduction for other sizes at a later date is planned — *Day & Night Mfg. Co., 855 Anaheim-Puente Rd., La Puente, Calif.*

Sheet Plastic Material For Tanks, Ducts, Hoods

FLEXIBLE AND elastic corrosion resistant plastic sheet material for lining tanks, ducts, and other equipment made of steel, wood, or concrete that can be installed by sheet metal contractors. Advantages of "Ry-O-Line," plastic are described as; resists corrosive attack of many alkalis and acids, highly resistant to abrasion and erosion, polished

surface facilitates solution flow, and easily applied and maintained. The plastic lining material is supplied in 3/32, 1/8, and 3/16 in. thicknesses — *Joseph T. Ryerson & Sons, Inc., 2558 W. 16th St., Chicago 80, Ill.*

Electric Furnace Offers Flexible Installation

ONE MODEL electric furnace offers central residential installation flexibility for highboy, counterflow, or horizontal applications. The unit is approved for zero clearance on sides and rear and provides instant shut-off and return to minimum starting load in event of power failure or limit cut-off. This reduces wire size requirements and eliminates power surge problems, according to the manufacturer.

Controls are not affected by ambient temperature; each stage is positively sequenced and timed in fixed steps. The blower is belt driven and separately controlled

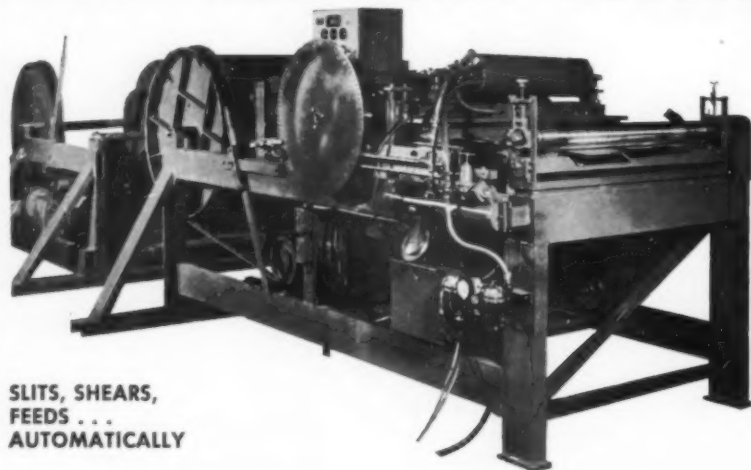
to eliminate cold air at the register. Complete stage selection is available from 10 kw (34,200 Btuh) to 25 kw (85,500 Btuh) — *Rybolt Heater Co., 615 Miller St., Box 590 Ashland, O.*

Heat Pump Designed for 130 F Air Temperature

A HEAT PUMP and a remote air cooled propeller fan type condenser have been added to the company's line. The self contained, air cooled heat pump (Model 3-THP-1) is a compact, central heating and cooling unit in one package and rated at three tons.

The heat pump can be mounted in the attic, crawl space, basement, or on the roof. The unit comes equipped with a 6 kw strip heater, which is automatically energized whenever unit enters defrost cycle; heavy duty compressor which will operate at 130 F ambient temperature — *Gaffers & Sattler, 8111 W. Beverly Blvd., Los Angeles 48, Calif.*

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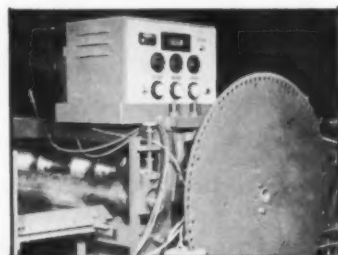
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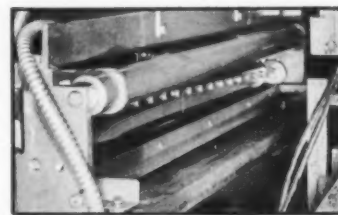
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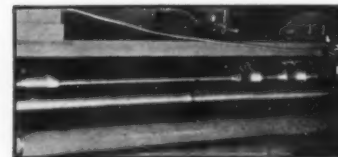
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Slitter slits metal. Unused metal is returned and rewound into a new roll of coiled metal.

Two to Seven Ton Cooling Coils Permit Broader Installation Range

NEW LINE of cooling coils consists of vertical units with capacities rated for 2, 3, 4, and 5 tons; horizontal units for 2, 3, 4, and 5 tons; blower equipped models for 2, 3, 4, 5, and 7 tons; and counterflow units for 2, 3, and 4 tons. Cooling coils feature cabinet designed to simplify installation, and to permit use of the same cooling coil for both highboy and lowboy installation, according to the manufacturer.

All of the units are shipped unassembled. The highboy unit is shipped with separate galvanized, bond-erized, painted and fully insulated bottom pan; because the bottom pan is not assembled, the opening can be enlarged to fit the outlet of most furnaces.

Side panels are equipped with knock-out openings in each panel. Front and rear panels are inter-changeable. Because the panels are the same size it is possible to install the coil from either the front or the rear — *American-Standard Air Conditioning Div., 40 W. 40th St., New York 18, N. Y.*

Zone Control Panel Eases Changeover Job

A CONTROL that permits the existing 2 wire thermostat to be utilized when modernizing most existing warm air heating or air conditioning systems to provide zone control of both heating and cooling equipment. The purpose of "Zone-A-Trol Convert-O-Stat" is to eliminate the problem or possibility of defacing or marring walls when changing to new thermostats.

The control converts the existing 2 and 3 wire thermostats to a 2 wire single pole, double throw circuit which is required to control the operation of low voltage zone controls.

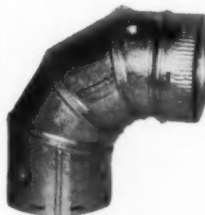
In installing the control there is no need to install extra wiring, according to the manufacturer — *Econo Products Co., Div. of Viking Instruments, East Haddam, Conn.*

Refrigeration System Charging and Purging Valve

VALVE RATED for 400 psi maximum working pressure and 300 F maximum temperature is designed for speed-up and simplification of charging and purging operations of refrigerant systems by its permanent installation in an opened refrigerant circuit. Size range: bottom connection $\frac{3}{8}$ through $\frac{5}{8}$ in. outside dimension of copper tubing to fit into the solder connection (ODM), and $\frac{1}{4}$ through $\frac{1}{2}$

THOR presents

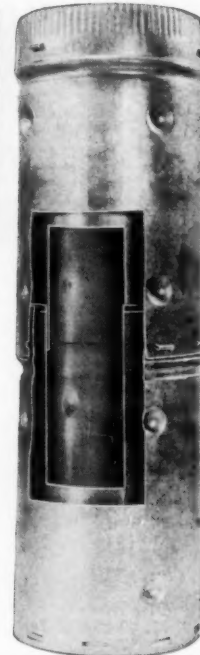
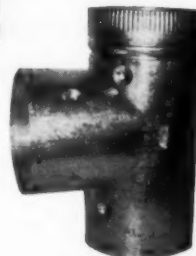
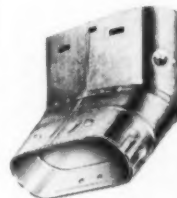
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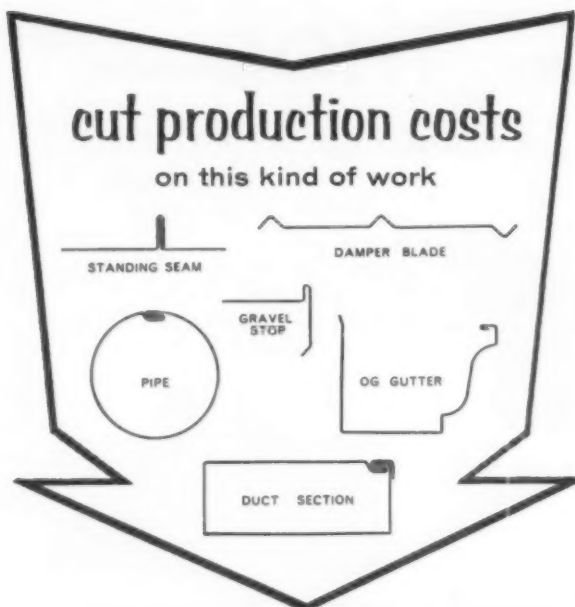


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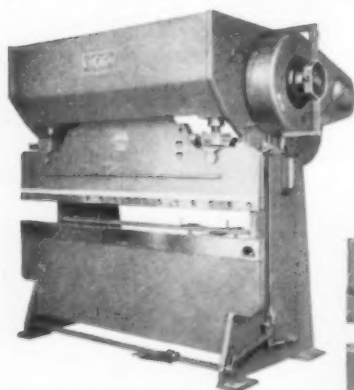
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equipment developments

(Continued)

in. outside dimension of copper tubing to fit over the solder connection (ODS). Side connections are $\frac{1}{4}$ and $\frac{3}{8}$ in. SAE, permitting use of either flexible charging hoses or flared copper tubing.

For purging, it can be installed in the branch of a horizontal "Tee" or in the end of a vertical "Tee" located in a high point in the system. It may be similarly mounted in any strategically located position for charging operations. Valve is furnished disassembled so that brazing operations will not damage internal parts. Seal cap, with mechanically retained gasket, is chained to valve body — *Henry Valve Co., 3215 North Ave., Melrose Park, Ill.*

Baseboard Diffusers Offer Increased Free Area

Two "PERFUSAIRE" baseboard diffusers with 25 percent more free area than previous models are available in two- and four-foot lengths. Diffusers offer low resistance, maximum throw and spread. Designed for warm air heating or year 'round air conditioning systems, the four foot unit (No. 348) has 47 sq in. of free area and the two foot unit (No. 324) has 23.5 sq in. of free area — *Auer Register Co., 6600 Clement Ave., Cleveland 5, O.*

Powered Gas Burner Pre-purges Chamber

POWER GAS BURNERS that provide a 20 second pre-purge period to clear the combustion chamber of unburned gases also establish a positive draft before opening the gas valve. Capacity ranges from 70,000 to 400,000 Btuh. Burner is flange mounted and completely factory assembled. Designed for use with natural and mixed gases, burner comes complete with all necessary controls except limit switch and provides immediate shutoff of the gas valve in cases of power failure — *Adams Mfg. Co., 1530 St. Clair Ave., Cleveland 14, O.*

Portable Air Sterilizer Rated for 6000 Cu Ft Area

"ARLO" AIR PURIFIER will handle up to 6000 cu ft of area. Designed for maximum performance in filtering, germ killing and deodorization. The unit also produces negative ions.

Twin panel electrostatic filters are used, with the second filter acting as a precipitator collector plate. Both filters are easily removed for cleaning by vacuum or washing. A squirrel cage blower rated

equipment developments

(Continued)

at 160 cfm changes the air in a room 12 x 14 ft in less than 10 minutes.

A patented system of air movement enables one 18 in. germicidal lamp to do the work that formerly required four lamps.

Minimum service consists primarily in cleaning the lifetime filters. All lamps have an average life of 6000 to 7500 hours — *Permatron Corp.*, 666 E. Kensington Rd., Arlington Heights, Ill.

Curved Blade Register With Multilouver Valve

A SERIES of registers and grilles feature curved blades which extend beyond the grille face and adjust individually to each installation. Four different face designs are offered, providing one, two, three or four way air pattern control, No. 201, 202, 203, 204. The deflection can be changed to meet seasonal requirements of combined heating and cooling systems. Horizontal multilouver valves located behind the directional blades control air volume. The system can be balanced at the face of the register by setting the adjustable stop on the op-

erator handle to limit valve opening.

Curved blade grilles without multilouver valves are available in all four face designs, No. 211, 212, 213 and 214. All four types of curved blade registers and grilles come in sizes ranging from 8 x 6 in. to 14 x 14 in. — *Air Control Products, Inc.*, Coopersville, Mich.

Box and Pan Brake Has Reversible Blade

"PEXTO" 36 in. capacity box and pan brake is available with a steel cabinet floor stand or may be bench mounted if desired. Advantages listed by the manufacturer include: rigid box construction frame, reversible bed blade, hardened socket head clamp screws, combination friction brake and lock, and handles positioned for maximum leverage. Capacity is 16 ga mild steel — *The Peck, Stow and Wilcox Co.*, 217 Center St., Southington, Conn.

Residential Humidifier Uses a Spinning Cone to Saturate Mat

"MIST-I-CONE" HUMIDIFIERS, designed to evaporate a high volume of water, will also trap dust, water minerals and water soluble odors (including tobacco smoke), according to the company. Cen-

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equipment developments

(Continued)

trifugal action of a spinning cone picks up water from a reservoir pan and throws it against a "breaker comb." This water saturates a high-porosity evaporating mat enclosing the unit. A self-contained fan pulls dry air into the unit's interior and forces it out through the moisture saturated mat. Air that leaves this mat and moves in the ventilation ducts contains 90 to 95 percent humidity, the company states. Humidifier is 20 in. high, weighs 27 lb — *Atmosphere Control, Inc.*, 668 Jenks Ave., St. Paul 6.

Top Mounted Fan Provides Unit Heater with Vertical Discharge

GAS-FIRED UNIT heaters are available in eight sizes ranging from 65,000 to 320,000 Btuh input. Top mounted fan pulls warm air from the ceiling and forces it downward, forward or in combinations of these directions. Die formed heat exchanger sections feature ribbed design to promote quiet performance.

Controls and burners are completely enclosed in a two-tone baked enamel casing. Wiring and piping

may be installed through the top of the unit — *The Johnson Furnace Co.*, 2129 W. 117th St., Cleveland 11.

2½ Ton Condensing Unit Uses Subcooling Condenser Coil

NOMINAL condensing unit, 2½ ton "HSA2-251," provides refrigerant subcooling through special coil circuiting. According to the manufacturer, liquid refrigerant reaches the evaporator up to 20 deg cooler than the condensing temperature. Axial-flow fan delivers 1855 cfm in a straight line pattern through the condenser which has 3.75 sq ft face area and four rows of ½ in. tubes.

Cabinet base and condenser air orifice panels are coated with a non-hardening mastic. The one-piece cabinet is of hot-dipped zinc-coated steel with baked on thermo-setting acrylic enamel. Sides and top are acoustically treated with ½ in. glass fiber insulation — *Lennox Industries Inc.*, 200 S. 12th Av., Marshalltown, Iowa.

Look for dealer-contractor's inventory control system which will be described in an article scheduled for December issue of American Artisan.

BIG CAPACITY
IN Small SPACE

AEROFIN *Smooth-Fin* Heating and Cooling Coils

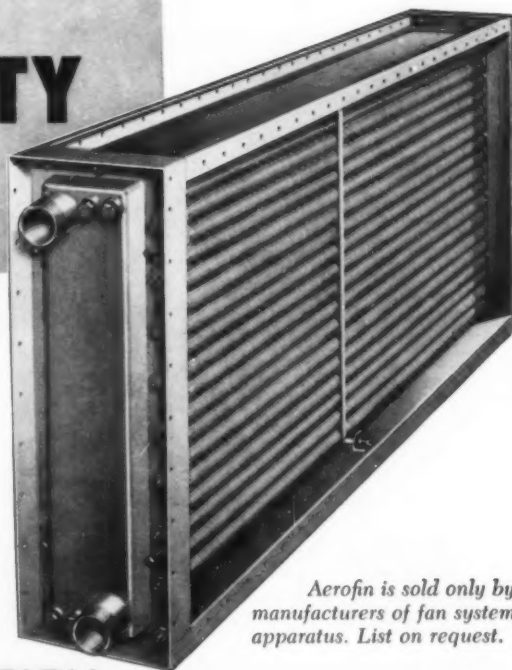
High ratio of surface area
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new literature . . .

Census Reports Contain Valuable Marketing Data for Small Firms

A NUMBER OF FACTS useful in determining market possibilities are available at nominal cost from official reports of the Bureau of the Census, according to a new leaflet issued by the Small Business Administration. The leaflet, "New Census Information for Your Business," is No. 70 in SBA's Small Marketers Aid series.

Types of census information and ways in which small businessmen can use the information are discussed in the leaflet, which says:

"The 1960 census figures on population and housing provide local information you can use in your business. This new census information, for one thing, indicates the types of dwellings and size — whether apartments or houses. If you know the number of houses in your area and their characteristics, you are better able to promote certain pieces of equipment that you can expect to be in demand."

Actual cases where census statistical data can be of value to small businesses are highlighted in the new Marketers Aid. As an example, if information indicates an unusually high number of older houses, you may want to step up your modernization promotion—*Small Business Administration, Lafayette Building, Washington 25, D.C.*

Rust-Resistant Dampers Available In Round and Square Models

ILLUSTRATED DATA SHEET presents details on galvanized steel ceiling diffuser dampers. Advantages listed include resistance to rust and smooth, quiet operation. An adjustable stop on the damper is designed to facilitate balancing the system at the diffuser face. Ask for bulletin No. 302-AC—*Air Control Products, Inc., Coopersville, Mich.*

Handbook Serves as Guide in Design, Installation of Gas Venting Systems

GAS VENT TABLES and Handbook (1961 edition) was prepared for use by heating dealer-contractors, building inspectors, architects, engineers and others concerned with the installation and venting of gas burning equipment. The booklet has been divided into two parts. Part I, containing the tables, provides tabulations of appliance heat input for all vent sizes from 3 to 24 in. with proper allowances for the height and configurations of the venting system. Information is given on both individual and combined vents.

Part II, the handbook, contains illustrated in-



BIG STEP in Modernizing a Duct System

Seal it with Arno Ductape. Unsealed ducts can't be efficient. A test in a typical home increased air flow at room registers an average 21% — simply by sealing all accessible duct joints with Arno Ductape, which sticks instantly and holds permanently.

Customers like and gladly pay for results like this. It's a low-cost service that makes friends — and profits, too.

If you are not now using Arno Ductape why not make your own test of the income and goodwill opportunities of this service? We'll gladly send a sample roll for demonstration.

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structions for handling a variety of venting situations. Special sections cover individual, combined, manifold and multistory venting.

As a further assistance to installers and other interested persons, the company offers a pocket slide rule calculator which provides design data for the majority of gas vent installations—*Metalbestos Div., William Wallace Co., Belmont, Calif.*

Book Discusses Air Conditioning Problems Encountered by Servicemen

"PRINCIPLES OF AIR CONDITIONING" is a textbook designed primarily for use in vocational schools and technical colleges. It also serves as a valuable reference for servicemen in solving technical air conditioning problems.

Subjects covered include basic psychrometrics, load estimating, duct design, installation data, and controls. Psychrometric charts, load estimating forms and a house plan are provided in the back cover. Included in the 327 pages are more than 500 illustrations and tables related to air conditioning equipment.

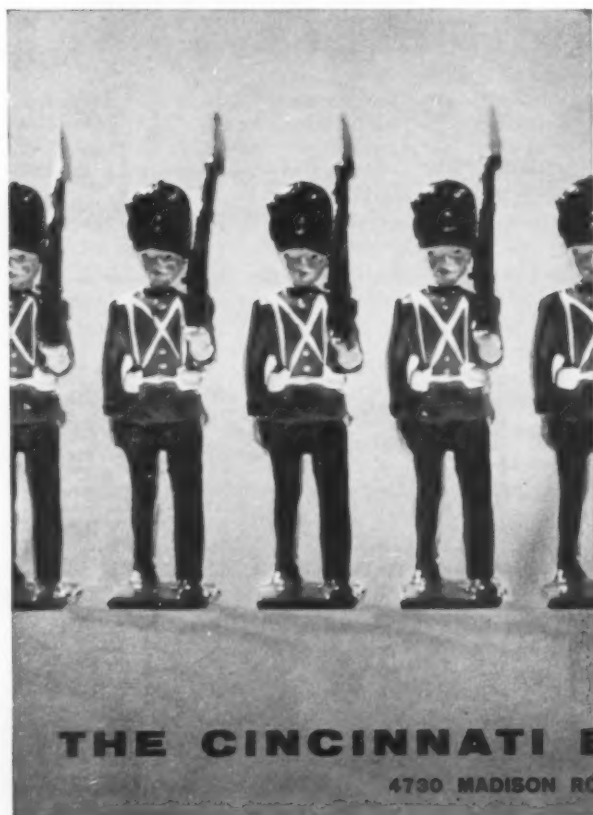
The book was written by Paul Lang, an em-

ployee of Carrier Air Conditioning Co. Price per copy, including an instruction manual with answers to questions at the end of each chapter, is \$6.25—*Delmar Publishers, Inc., Mountainview Ave., Albany 5, N. Y.*

Revised Standard Presents Safety Requirements for Oil-Fired Furnaces

STANDARD UL 727 for Oil-Fired Central Furnaces dated August 1961 supersedes the edition dated October 1957. According to Underwriters' Laboratories, Inc., the current standard was prepared by UL following a careful study of the laboratories' staff; it has been reviewed by and discussed with manufacturers of oil-fired central furnaces and others known to have an interest in the requirements which it contains; and it has been approved by the Laboratories' Fire Council which is composed largely of inspection authorities throughout the United States.

The requirements listed cover oil-fired central furnaces, including both gravity and forced air models, of the counterflow, horizontal and highboy types. Floor-mounted unit heaters designed to supply heated air through ducts are also covered—*Underwriters' Laboratories, Inc., 207 E. Ohio St., Chicago 11.*



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fit the duct without
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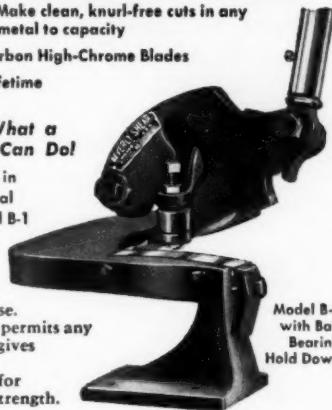
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... Adds new beauty to installations • Balanced Construction . . .
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NWAHACA Publishes Manual Covering New Load Calculation Procedure

A FEDERAL HOUSING Administration request for a single load calculation procedure and the development of one that has been industry-accepted has resulted in the publishing of a new manual by the National Warm Air Heating and Air Conditioning Association.

Identified as Manual J, "Load Calculation for Residential Winter and Summer Air Conditioning," the new publication supersedes NWAHACA Manuals 3 and 11.

The new manual is divided into three principal parts. Section 1 gives an explanation of the new procedure which is clarified by graphic illustrations. All of the ordinary or normal conditions necessitating heat gain and heat loss calculations under the new method are covered in this section. Section 2 is devoted to tables and maps. Section 3 presents factors governing unusual construction features.

Development of the new manual is the outgrowth of nearly two years of committee meetings by the Load Calculation Committee of NWAHACA and the efforts of the Industry Heat Gain

Joint Study Group, which is composed of representatives of the Air-Conditioning and Refrigeration Institute, the Institute of Boiler and Radiator Manufacturers, and the National Warm Air Heating and Air Conditioning Association.

Copies are available to NWAHACA members without charge, may be purchased by non-members at a price of \$2.50 each—*National Warm Air Heating and Air Conditioning Association, 640 Engineers Bldg., Cleveland 14.*

Describes Oil Burner Nozzles, Draft Controls for Heating Industry

HEATING PRODUCTS CATALOG H-61 (20 pages) is divided into three main sections: 1) Oil Burner Nozzles; 2) Oil Burner Accessories; and 3) Draft Controls. Products are illustrated to show construction and design features. Supplemental text gives technical information and specifications.

Featured in the oil burner nozzle section are capacity and spray angle charts, illustrations of spray patterns, and engineering recommendations for proper application of each type of nozzle. The draft control section discusses reasons for proper draft control. Selection and ordering information are included. The accessories section illustrates and describes strainers, adapters, nozzle tools, in-



**BIG TWIN
250 AC/DC**



**LITTLE TWIN
180 AC/DC**

AND BOTH MILLERS ... Through and Through

BIG TWIN combination ac-dc welders work from single phase service — deliver new convenience and economy. Two a-c amperage ranges of 20-125 and 60-290 plus two d-c ranges of 18-100 and 55-290 amps master nearly every welding requirement from light gauge metal to structural pieces. Movable shunt type transformer affords infinite current adjustments. Other features include: Horizontal design for easy stacking; weather-resistant construction and Class B insulation; Miller-built semi-metallic rectifier for best d-c welding; high open circuit voltages and new weld stabilizer. This is THE all-time, all-around welder!

LITTLE TWIN ac-dc combination welder has two a-c amperage ranges of 20-115 and 60-180 plus one d-c range of 40-150. Operating from single phase service, this Miller model incorporates many design and construction features usually found only in large industrial types. These include really rugged construction, forced air cooling, new Miller semi-metallic rectifier, movable shunt type current control, new weld stabilizer and open circuit voltage in abundance. Power factor correction is available on both models. Complete specifications on either model will be sent promptly upon request.

miller

ELECTRIC MANUFACTURING COMPANY, INC., APPLETON, WISCONSIN

Distributed in Canada by Canadian Liquid Air Co., Ltd., Montreal

new literature

(Continued)

spection mirrors, electrodes, nozzle kits and nozzle racks—*Wm. Steinen Mfg. Co., Heating Div., 47 Bruen St., Newark 5.*

Explains How Quality Products Facilitate Fuel Oil Delivery

TWENTY-FIFTH ANNIVERSARY LITERATURE describes "Ventalarm" fuel oil tank gages and signals, safety vent caps, and "Ventafil" combined fill, vent and signal for underground tanks. Illustrations include drawings showing product design features and a diagram illustrating how company's products are used when oil is delivered from a truck to either an underground tank or to a tank located in a building—*Scully Signal Co., Melrose 76, Mass.*

Data Given on Horizontal, Highboy And Counterflow Gas-Fired Furnaces

FOUR PAGE CIRCULAR describes "Comfort Power" horizontal gas furnaces. Data is presented for eight models ranging in capacity from 70,000 to 150,000 Btuh input. Specifications are also included for five models equipped with high static blowers designed especially for air conditioning applications.

A second data sheet contains specifications for "Spacenter" highboy and counterflow units available in 22 models—*Sequoia Mfg. Co., 1090 Brittan Ave., San Carlos, Calif.*

Describes Registers and Grilles For Heating and Cooling Applications

AIR CONDITIONING REGISTER and grille catalog lists dimensions, prices, sizes, free area, finishes available and other information. Products illustrated and described include "Out-O-Wall" diffusers, baseboard and floor diffusers, single and multiple valve registers, return air and ventilating grilles. Also described are adjustable ceiling ventilators, floor faces, ceiling diffusers, door grilles and outside intake ventilators. Featured is a section on "Air-Vane" registers and grilles—*Rock Island Register Co., 2435 Fifth Ave., Rock Island, Ill.*

ASHRAE Publishes Volume I Of Guide and Data Book

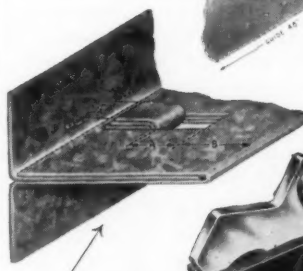
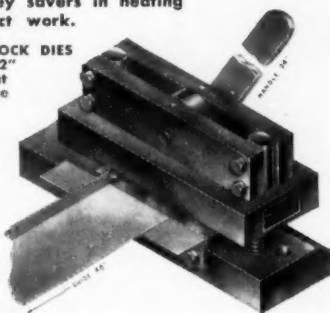
THE 1961 ASHRAE GUIDE AND DATA BOOK is a consolidation of the Heating, Ventilating and Air-Conditioning Guide and the Air Conditioning and Refrigerating Data Book. The 1961 publication is

—THOR QUALITY TOOLS —

Are time and money savers in heating and ventilating duct work.

THOR GOVERNMENT LOCK DIES shear — punch a 5/32" hole — and mark point at breakline, all in one operation.

Dies available for 1", 1 1/4", 1 3/4", and 1 1/2" government locks. Hand or foot press operated, or for punch presses.



Sample of Lock Completed in one operation — no hammering



THOR Universal Clip Punch Capacity, 3 sheets of 20 ga. metal

Efficient tool for fastening government locks and standing seams. New sensational **AIR-OPERATED CLIP PUNCH** for Gov't Locks and standing seams now available.

See your local dealer or write for literature and samples of metal sheared in above tools.

Thor Tool and Die Co.

865 Estabrook St., San Leandro, Calif.

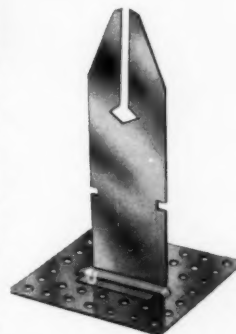
FASTER WAY

to apply
insulation, helps
SHRINE OF THE
IMMACULATE CONCEPTION



The largest Catholic cathedral in the United States built by John McShain Inc., utilized **Stic-Klip Fasteners and Adhesive** for insulating its vast heating and air-conditioning duct installation.

When insulation materials require fast, labor-saving, positive, permanent anchoring, plus eliminating the necessity of drilling or punching, you can't go wrong by using proven, tested, **Stic-Klip Fasteners and Adhesive.**



For information and samples, or an answer to a particular insulation problem, write us today:

Stic-Klip® MANUFACTURING CO., INC.
68 Regent St., Cambridge 40, Mass.
Distributorships available in protected territories



NOT BUT FOR

A fact . . . more profits in dollars for you with DUST-magnet filters. Competitively priced and with an excellent profit margin. There are more advantages to stocking and selling DUST-magnet filters than any other filter. DUST-magnet filters are manufactured with Poly-Mag 80, an electrostatic plastic exclusively designed for Stoddard Industries . . . permanent filters guaranteed for the life of the unit in which used. Order them now from your wholesaler.

tages to stocking and selling DUST-magnet filters than any other filter. DUST-magnet filters are manufactured with Poly-Mag 80, an electrostatic plastic exclusively designed for Stoddard Industries . . . permanent filters guaranteed for the life of the unit in which used. Order them now from your wholesaler.



Rinse, shake and replace.



Trap particles as small as 4/10 micron

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a product of STODDARD INDUSTRIES

3383 E. Layton Ave., Cudahy, Wisconsin



J. B. Smith Company

3327 "B" Street

Philadelphia 34, Pa.

new literature

(Continued)

the first of a two-volume series. It contains 880 pages of reference material on fundamentals and equipment. The second volume, on applications, is scheduled to appear in 1962.

Volume I contains sections on theory, materials, load calculations, system components, air conditioning units and refrigerant systems. Text is supplemented by numerous charts, graphs and tables. Price of the 1961 volume is \$12.50—*American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., United Engineering Center, 345 E. 47th St., New York 17.*

Describes Features, Applications Of Extruded Aluminum Louvers

BOOKLET CONTAINS DESCRIPTIVE DATA covering extruded aluminum louvers available in fixed, operating and special models. Specifications and dimensional information are included—*Construction Specialties, Inc., 55 Winans Ave., Cranford, N.J.*

Gives Engineering Data On Class I and II Fans

CONSTRUCTION FEATURES and operating characteristics of "Sirocco" Class I and II fans are discussed in Bulletin No. A-1401 (48 pages). Drive arrangements, control methods and types of drive are described and illustrated. Capacity tables, drawings and dimensional information are included as well as a typical specification designed as a guide for engineers, architects and others—*American-Standard Industrial Div., Detroit 32.*

Notchers Are Designed to Speed Production, Cut Labor Costs

HEAVY DUTY and standard notchers designed to save time and increase profits for sheet metal contractors are described in a four-page, three-color circular illustrated with product and application photos. Heavy duty models have a 16 ga mild steel capacity, standard models a 22 ga capacity—*Ruoff & Sons, Inc., 9 Chestnut Ave., Bellmawr, N.J.*

Air Flow Measurement Data Designed To Aid Heating, Cooling Dealer

BULLETIN ON AIR FLOW SYSTEMS presents information on "Velometer" air velocity meter and other air measuring instruments. Ask for bulletin No. 2448—*Alnor Instrument Co., Div. of Illinois Testing Laboratories, Inc., 420 N. LaSalle St., Chicago 10.*

we hear that...

► THE JOHNSON FURNACE CO., Cleveland, has purchased new and larger facilities located in Bellevue, Ohio, where it plans to move sometime after the first of next year. The move will be gradual, according to the company, and cannot begin until after the end of the current year because of heavy production schedules which must be maintained at this time.

► THE AIRTEMP Div., Chrysler Corp., has opened a branch office in Dallas located at 2122 Olive St. William C. Ewert Jr. will manage the new branch.

► A THREE-DAY SERIES of sales meetings for distributors was conducted recently by Walton Laboratories, Inc. Held at Chicago's Edgewater Beach Hotel, the meetings featured presentations on both the technical and merchandising aspects of the company's 1961-62 program. After a discussion of each of the company's three basic markets for humidifiers, detailed merchandising presentations were made concerning specific market exploitation techniques. Speakers included John B. Felderman, president; Herbert E. Puttbach, sales manager; Al Janks, humidification engineer; Frank Hart-

well, eastern regional manager; and John Welsh Jr., regional manager.

► DEALER-CONTRACTORS AND DISTRIBUTORS for the Fedders Corp. recently spent an eight-day "Holiday in Rio." Arriving by jet, the travelers spent their first four days at the Miramar Palace Hotel, located on the Copacabana. Following that, they visited Petropolis, a mountain resort area about an hour from Rio. The flights to Rio are one part of the company's 1961 sales incentive program.

► MODERN COMFORT, INC., a new company, has purchased the furnace division of Wayne Home Equipment Co., Inc., Fort Wayne. Paul F. Jock is president of Modern Comfort, which will market gas and oil furnaces, gas burners, electric heating units and central air conditioning systems as well as other products. Headquarters of Modern Comfort will be at 2250 Dwenger Ave., Ft. Wayne.

► THE TRANE CO. has opened a Rockford, Ill., sales office at 3623 East St. Edmund Volker is the sales engineer assigned to the new office, which is under the management of S. T. Shimanski of the Madison, Wis., sales office.

MANUFACTURED BY

TJERNLUND

ADAPTABLE TO ALL
COMMERCIAL HEATING NEEDS

**YOUR GUARANTEE
OF CUSTOM BUILT**

QUALITY

because Tjernlund heating equipment is

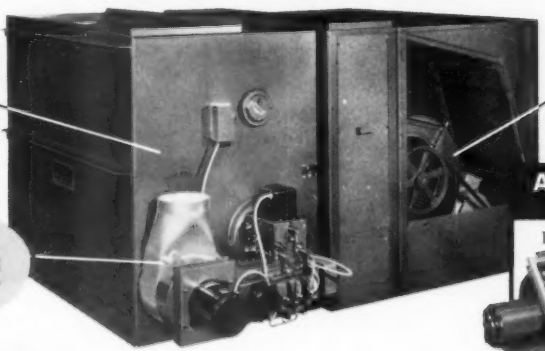
Manufactured 100% by TJERNLUND

**HEAT
EXCHANGER**

Multiple flue arrangements for maximum heating surface in minimum space.

**BLOWER
ASSEMBLY**

Custom designed and built for greater efficiency and quiet operation.



**BURNERS
GAS AND OIL**

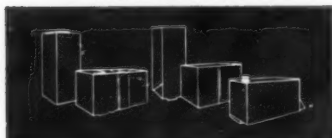
Precision built in full range of sizes. Also combination gas and oil.

AUTO-DRAFT INDUCERS
ALL-PURPOSE MODELS

FOR IMPROVING EFFICIENCY
OF OLD AND NEW
HEATING SYSTEMS

Exclusive Tjernlund design in full range of sizes. Simple installation and efficient venturi type operation.

Write For Literature



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Zatko SILENTRIDE[®] V-Belts

**... absorb
more vibration**

... and this is not an idle claim! Laboratory tests back up "Silentride" performance in reducing noise and vibration.

"Silentride" Belts are especially designed for heating and air conditioning equipment, window and attic fans.

More information on request.

T M Pending

Zatko METAL PRODUCTS CO.
20850 ST. CLAIR AVE., CLEVELAND 17, OHIO

Zatko—World's Largest Manufacturer of stamped one-piece Pulleys

Statement of Ownership and Management of AMERICAN ARTISAN for October 1, 1961

The following is a statement of ownership, management, etc., as required by act of Congress of August 24, 1912, as amended by the acts of March 3, 1933, July 2, 1946 and June 11, 1960 (74 Stat. 208) showing the ownership, management, and circulation of American Artisan, published monthly at Chicago, Ill., for October 1, 1961.

1. The names and addresses of the publisher, editor, business managers and president are:

Publisher: Chas. E. Price, 1120 Greenleaf, Wilmette, Ill.

Editor: Clyde M. Barnes, 2640 Berwyn, Chicago, Ill.

Business Manager: C. M. Burnam, Jr., 8933 S. Leavett, Chicago, Ill.

President: Chas. E. Price, 1120 Greenleaf, Wilmette, Ill.

2. The owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual member, must be given.)
Keeney Publishing Company, 6 North Michigan Ave., Chicago 2, Illinois. Stockholders: Robert A. Jack, 3565 Glen Allen Dr., Cleveland Heights 21, Ohio; Chas. E. Price, 1120 Greenleaf, Wilmette, Ill.; W. J. Osborn, 1029 Old Post Rd., Fairfield, Conn.

3. The known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: None.

4. Paragraphs 2 and 3 include in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting; also the statements in the two paragraphs show the affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner.

5. The average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the 12 months preceding the date shown above was: 10,123.

C. M. Burnam Jr., Business Manager

Sworn to and subscribed before me this 11th day of September, 1961.
(SEAL) Lydia Thomas

[My commission expires November 21, 1963]

merchandising ideas

► CHRISTMAS GIFTS available from the National Oil Fuel Institute for use in dealer-contractor promotion include such items as staplers, money clip knives, pocket lighters, key chain flashlights, executive pen sets and thermometers. All provide space for the dealer-contractor's advertising message. Other sales aids offered by NOFI include two mailing pieces—"Look Before You Leap" and "Heat in the Bank."

► A MONTH-LONG temperature guessing contest on a St. Louis radio station proved a successful yet inexpensive promotion for a St. Louis wholesaler as well as for 60 air conditioning dealer-contractors in eastern Missouri and south central Illinois, according to Carrier Air Conditioning Co. Area sales of Carrier air conditioners during the period were reported to be about 20 percent ahead of the same period last year.

Contestants were invited to guess the highest official temperature recorded in St. Louis in July and mail their guess to the radio station. To avoid ties, the station directed listeners to list the day and time of the high temperature. To promote the contest, the station reported in each of its spot announcements that a Carrier room unit was the prize. The only cost to the wholesaler—Marco Sales, Inc.—was the price of the unit.

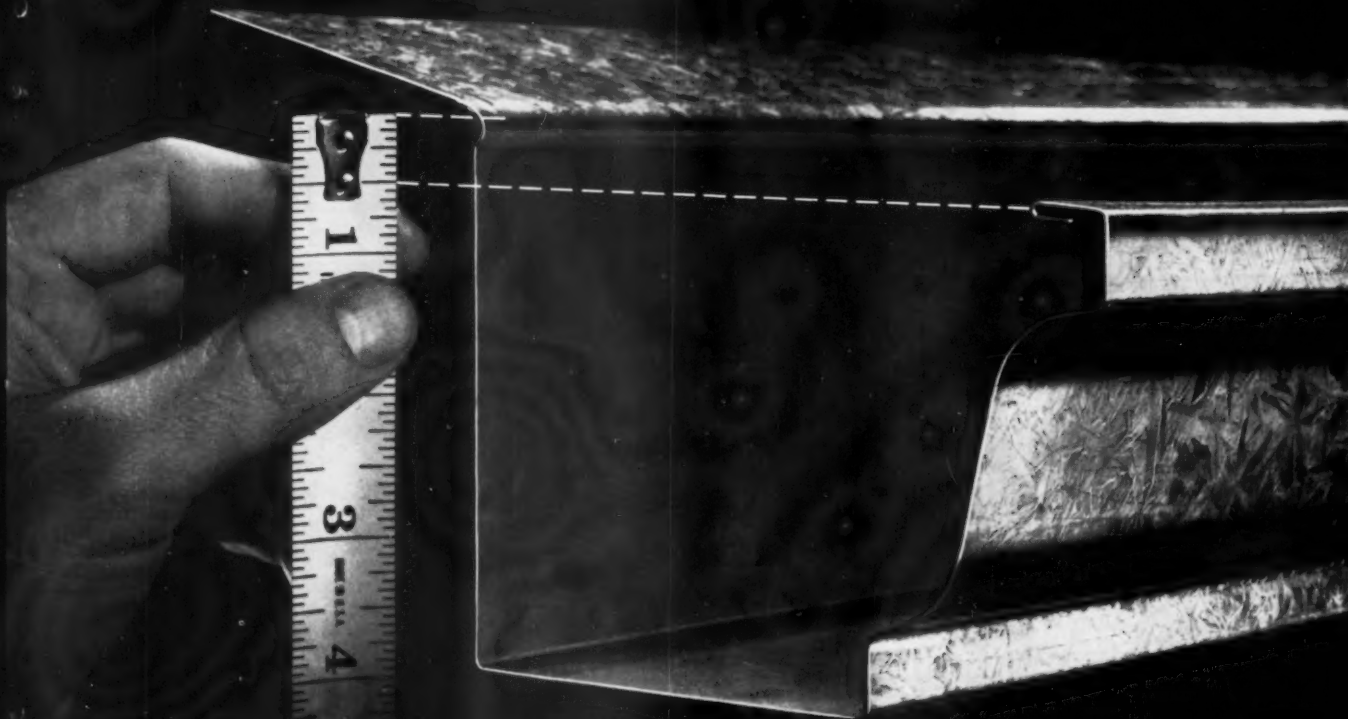
According to Kenneth Roffman, president of Marco, the promotion will be repeated next year. "The station gained listeners," he said, "and I received \$1000 worth of one-minute spots."

► DAY & NIGHT MFG. Co. is bringing the "Duopac" year 'round air conditioning story to dealer-contractors, architects and builders throughout the country via a fleet of two-wheel trailers mounted with demonstration units. The "Duopac" is a combination gas furnace and electric air conditioner designed for outdoor installation—on a ground level slab or on a rooftop. For demonstration purposes, side and top panels of the display unit have been replaced with clear plastic permitting an unobstructed view of interior construction. The front of the trailer is equipped with a leveling jack and wheel. For group meetings, the trailer is simply unhitched and rolled inside the meeting room.

► "BUY A WINTER'S SUPPLY" is the theme of Owens-Corning Fiberglas Corp.'s fall "Dust-Stop" filter promotion. Furnace filters should be replaced at least three times every winter, according to the company. Sales promotion aids available to dealer-contractors include window banners, pennants, ad mats and publicity releases.

EXTRA HALF-INCH ADDS TO ROOF PROTECTION

Front is $\frac{1}{2}$ " lower than brake line — permits overflow if gutter becomes clogged. Prevents water from backing up under roof.



Milcor Pre-flanged Highback Gutter
CUTS YOUR JOB COSTS 3 WAYS!



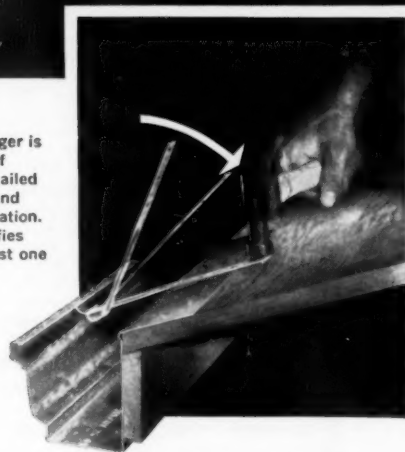
1 You eliminate flashing! Back flange of gutter covers and protects the edge of the roof. Makes a separate roof edge unnecessary.

2 You eliminate a brake operation! Roof flange is already formed on every length of gutter.

3 You finish jobs faster! Style K Hanger provides fastest installation method in use today.

Try Milcor Pre-flanged Highback on your next job. 4" and 5" sizes; 10-, 20-, 25-, 30-, and 32-ft. lengths; 28- and 26-ga. Ti-Co galvanized steel. See your jobber or write us for further information and prices.

Milcor Style K Gutter Hanger is hooked into open hem of front bead of gutter and nailed to roof, fastening front and back of gutter in one operation. Concealed feature simplifies gutter painting. This is just one item in the Milcor line of top quality roof drainage products. Look to Milcor for all sheet metal needs.



You can stake your reputation on a Milcor installation!

Member of the  Steel Family

MILCOR

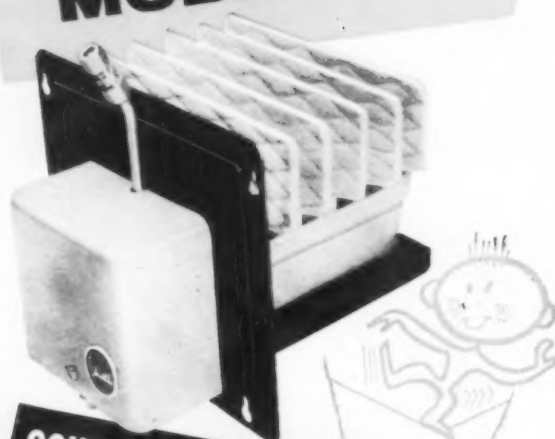
Inland Steel Products Company

DEPT. K, 4023 W. BURNHAM ST., MILWAUKEE 1, WISCONSIN
BALTIMORE, BUFFALO, CHICAGO, CINCINNATI, CLEVELAND, DETROIT, KANSAS CITY,
LOS ANGELES, MILWAUKEE, NEW ORLEANS, NEW YORK, ST. LOUIS

Skuttle's

Compact

MODEL 711



COUNTER-BALANCED HUMIDIFIER



For happy little homes

This low-priced, highly efficient unit requires just one installation — one adjustment. Designed without moving parts for trouble-free operation, the Model 711 is shipped completely assembled with 5 Vapoglas plates, stainless steel plate rack, and reversible valve seat. Perfect for the smaller home, this compact unit is easily installed and self-compensating to variations in water pressure.

PATENTED VAPOGLAS PLATES

Made of compressed pure glass wool, Skuttle Vapoglas plates are patented for quality protection. Extremely porous (they absorb up to 70% more water per pound than ordinary filter plates), they resist clogging longer.



Skuttle

MANUFACTURING CO., Milford, Michigan

Dept. AA

Gentlemen: Please send complete information on

- ☐ Skuttle Model 711 ☐ Vapoglas Plates
☐ Skuttle's Complete Line of Products

Name _____
 Company _____
 Address _____
 City _____ State _____

appointments . . .

► **EDWARD J. BROWN**, former research assistant professor of mechanical engineering at the University of Illinois, as research engineer for the Titus Mfg. Corp. While at the university Mr. Brown was active in a number of research projects including an investigation of dampers used in large duct systems. He is well-known to the readers of American Artisan as the author of several technical articles which have appeared in its pages.

► **RICHARD B. SCHMIDT** as manager of marketing — a newly created position — for Mueller Climatron Div. of Worthington Corp. Mr. Schmidt has been with the division since 1947, has served as sales correspondent, sales representative, Milwaukee city sales manager, sales promotion manager, and general sales manager. George M. Hase, formerly manager of planning, has been named sales manager. Joining Mueller in 1948, Mr. Hase has served in various capacities, including sales representative, sales engineer and manager of sales engineering.

► **JACK WHALING** as vice president in charge of sales for the Holly-General Div., Siegler Corp. Mr. Whaling, who joined the division in 1960, was previously southern California divisional sales manager.

► **ROBERT H. WASZ** as assistant vice president of Joseph T. Ryerson & Son, Inc. Mr. Wasz, formerly general manager of the company's plant in San Francisco, will have headquarters in Chicago. Succeeding him as general manager at San Francisco is Norman F. Rewoldt, formerly manager of work order sales at that plant.

► **KENNON G. HULL** as national sales manager for Atmos-Pak Inc. Mr. Hull was formerly eastern regional manager for Janitrol Heating and Air Conditioning Div. of Midland-Ross Corp.

► **JOSEPH J. MERRICK** as vice president in charge of sales for the Norman Products Div., John J. Nesbitt, Inc. Mr. Merrick joined Nesbitt in 1935, has served in various capacities including divisional manager for heating and air conditioning products.

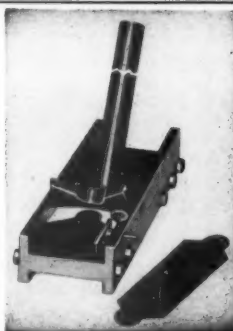
► **ALFRED J. HAMILTON Co.** as Connecticut representative for the Flexible Tubing Corp., handling "Thermallex" air conditioning Products. The Hamilton firm has offices at 2996 Main St., Hartford.



SWIVEL HEAD SQUEEZER TONGS ▶
For closing Government box lock connection on duct work and all standing seams. Swivel head makes tongs usable on all four sides, in either vertical or horizontal position.

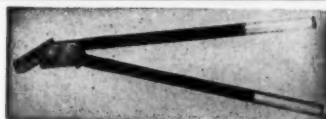
for a complete
line of **SHEET
METAL MACHINES
AND TOOLS**

DRIVE CLEAT NOTCHER ▶
Handles up to 3" wide, 20 ga. or lighter. Hand operated. Mounts on bench, or on job with clamps, or bolts and screws.



CLIP PUNCH ▶

For fastening slips or seams on ducts. Will push a "half moon" thru 3 thicknesses of 18-ga. steel. No hammering or flattening out to fasten slip to the duct.



**QUICK SET
DIVIDERS** ▶

Fastest, most accurate on the market. Two sizes for circles up to 36" and 48". Removable steel points, or pencil. No center punch needed.



REINER & CAMPBELL CO., INC. P.O. Box 5035
Newark 5, N.J.

**LITE-CAST
COMBUSTION CHAMBERS**
QUICK HEAT LONG LIFE

MONOGRAM has...

U.S. Pat. No. 2,678,488



364 Standard Designs and sizes of LITE-CAST Insulating Refractory Combustion Chambers for ALL Boilers and Furnaces.

.75 TO 23 GALLONS PER HOUR

MONOGRAM PRODUCTS CO., INC.

733 NORTH 35th STREET, PHILADELPHIA 4, PA.

TONGUE & GROOVE JOINTS

HIGH SIDE WALLS

DOUBLE SEAL BETWEEN FLOOR & WALLS

PRE-CAST FLOOR

AIR SPACE BENEATH FLOOR

PEXTO **HANDY SEAMER**

No. 794 without gauges

No. 793 with gauges



Forged steel Handy Seamer with or without depth gauge

Complete line of machines and tools for sheet metal fabrication.

THE PECK, STOW & WILCOX COMPANY, SOUTHINGTON, CONN. U.S.A.



ORNAMENTS

STAMPINGS & SPINNINGS

Zinc Ornaments Available From Stock. Copper, brass, bronze, aluminum and stainless steel ornaments made up promptly.

If you don't have catalog K, send for it NOW

MILLER & DOING

89 ADAMS STREET

BROOKLYN, N.Y.

**ALLEN SODER-FLUXES
FOR STRONGER JOINTS**

For Soldering — Brazing — Welding



Write us today for Soldering ideas—FREE

You can get a complete line of SODER-FLUXES from Allen for soldering brazing and welding all metals.

L. B. ALLEN COMPANY, INC.
9302 Berenice Schiller Park, Ill.
—Metropolitan Chicago—

**WHERE SHEET METAL SCREWS WON'T HOLD...
USE**

**MOLLY JACK NUT®
SCREW ANCHORS**

MOLLY JACK NUT IS EASY TO INSTALL

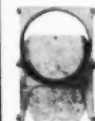
- 1 Insert Jack Nut into hole. Needs only 1/2" expansion space.
- 2 Run in screw to collapse collar. 2 anchor backing by exerting pull on threads.
- 3 Jack Nut now in installed and ready to receive attachment screw.

Amazing blind fastener with threads grips any material up to 3/8" thick and needs only 3/8" expansion space.

Sold Through Distributors Only

MOLLY CORPORATION
READING, PA.

**Alfred Goethel Sheet Metal Works, Inc.
HAS WHAT YOU NEED**



FULL BLAST GATES 3" and up STOCK



HALF BLAST GATES 3" to 8" STOCK

FLANGES & GASKETS
BLOWPIPE ELBOWS
DUST COLLECTORS & FITTINGS
PVC PLASTIC

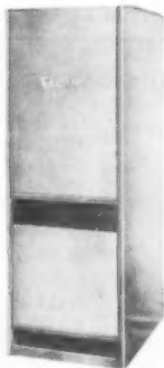


BALL JOINTS 3" to 12" STOCK
PIPING 10' LENGTHS, 7' & LARGER, 16 ga and LIGHTER

Alfred Goethel Sheet Metal Works, Inc.
3218 W. Fond du Lac Ave. Milwaukee 10, Wis.



PRIDE OF OWNERSHIP starts early...lasts a lifetime! You understand it. So do your customers. It represents the **satisfaction** that comes from owning a prized possession...one that represents the best efforts of its maker. **PEERLESS** furnaces and air conditioning equipment have earned that kind of customer appreciation. And, it pays off for dealer, builder, contractor and home owner. Everyone appreciates and benefits from **quality**.



PEERLESS CORPORATION
1853 LUDLOW • INDIANAPOLIS, INDIANA

* **NOW** 4 locations to better serve the growing family of Peerless customers

INDIANAPOLIS
INDIANA

DOWAGIAC
MICHIGAN

ATLANTA
GEORGIA

TAMPA
FLORIDA

appointments

(Continued)

► **JAMES KUPPE** as manager, furnace sales, for The Trane Co.'s packaged equipment sales department. William Ferguson was named manager, self-contained cooling sales department. Carl Lindblom was appointed manager of the split-system cooling sales department.

Clifford W. Alford has joined the Oklahoma City sales office and will specialize in the sale of packaged air conditioning and heating equipment for residential and small commercial applications. Jack Downing has been assigned to the Seattle sales office, and Richard T. Marshall has joined the Houston office. Both Mr. Downing and Mr. Marshall will also handle packaged equipment for residential and small commercial applications.

Appointed to head the company's Kansas City sales office was Andrew K. Morris, formerly sales engineer at the Wilkes-Barre sales office. William J. Tarnowski has been appointed sales engineer in charge of a newly opened sales office in Springfield, Mass. Other new sales engineers are Calvin L. Kleinschmidt, who has joined the Detroit office, and Chris N. Cuddeback, who will work out of the Bethesda, Md., sales office.

► **CHARLES D. WRIGHT** as southern regional manager of American Air Filter Co.'s Air Filter Div. Mr. Wright, currently located in the firm's offices in Louisville, will move to Atlanta where he will be more centrally located within the region he is to serve.

► **ROBERT C. GILSON** as warehouse division sales manager in Cleveland for Chase Brass & Copper Co., a subsidiary of Kennecott Copper Corp. Mr. Gilson joined Chase as a salesman in 1950, has worked in recent years out of the firm's Houston, Texas, office.

► **BILL L. ARBUCKLE** as eastern sales manager for the Commercial Div. of Jenn-Air Products Co., Inc. He will cover all Atlantic coast states from Maine to Florida, will have offices in Charlotte, N. C.

► **LEONARD D. THOMPSON** as sales engineer for heating controls for General Electric Co.'s Appliance Control Department at Morrison, Ill. Mr. Thompson has been with General Electric since 1941 and has served in various capacities, most recently as design engineer for the Instrument Department. In his new position, he will be responsible for sales of the Appliance Control Department's residential warm air heating and other controls.

Index to Advertisers

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AMERICAN ARTISAN'S SERVICE

\$5 EXTRA PROFIT TO YOU . . .
AT A COST OF ONLY \$10.50 — and better quality
for your customers with . . .

SHELCO FILTERS and UNIVERSAL REFILLS

ONE UNIVERSAL SIZE FOR PRACTICALLY ALL YOUR REQUIREMENTS

Special combination package . . .

YOU GET 25 REFILLS . . .



Designed for just about every make of filter. You stock one brand and size, reducing inventory and capital funds. Quality construction means high performance without service calls, at prices to beat all competition.

Where can you pick up five bucks easier? This special combination package means extra profits for you by supplying refills and filters proved on jobs everywhere. Write us today for more information.

YOU GET 3 FILTERS . . .

with cast iron head steel shell. Remove center support rod to take apart. Machined gasket seats, bottom cover hydrogen copper brazed give positive leak protection. Attractive finish.



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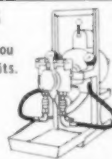
THE SHELTON COMPANY • 200 SHELTON AVE., NEW HAVEN, CONN.

GUARANTEED NOT TO LEAK!

REBUILD FUEL PUMPS

Portable Fuel Unit Tester allows you to test and rebuild all fuel units. Write today for full info.

GASOLAIR EQUIP. CO.,
P.O. Box 768 New Haven, Conn.



Time Tested for 25 Years

**Warm Air Boosters
and
Chimney Draft Fans**

Brumme Mfg. Co.
609 Freeman St.
Topeka, Kansas

Keep Your Directory Section Handy

It's one of your most valuable tools — It's the ONE complete, up-to-date, readily accessible source of product information on who makes the blowers, snips, furnaces, fittings, specialties of all kinds, etc., you need. Keep it handy . . . — you'll find it in the back of your January issue.

"CUSTOM MADE" SHEET BLANKS

"CUSTOM MADE" SHEETS

**Aluminum Galvanized
Cold Rolled**

Slit to width — Cut to Length, from prime coils on our New High Speed **S L E A R**. Let us quote on your specifications.

We stock only prime sheet & coil.

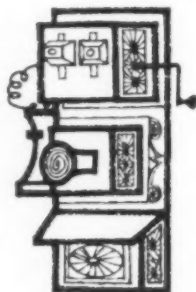
SOUTHER STEEL

&

ALUMINUM CO.

"THE HOUSE OF COILS"

St. Louis 33, Mo. EV 5-5900



SPECIAL MESSAGE FOR MANUFACTURERS

**. . . keep your line
busy! Advertise
consistently in the
Service Section.**

. . . if you don't keep your line busy, nobody makes any money. Products must be moved to show profits and your basic moving method is advertising.

For this you need the best possible coverage, and you can get it with advertising in American Artisan's Service Section. That's one sure way to sell your products and to assure complete and economical coverage. It's a real buy when you consider you're reaching over 10,000 **GUARANTEED** readers each month at a cost of less than 1/8c for each reader. We'll help with the preparation of copy, too. Just send us literature and we'll supply a copy suggestion at no cost. If you decide to use space, the charge is merely \$14.00 per column inch per month.

more information available

phone, write, wire

AMERICAN ARTISAN

6 North Michigan Ave.

Chicago 2, Illinois

Phone — STate 2-6916

CLASSIFIED ADVERTISING

Is the quick, economical way to find what you're looking for. Check the page each and every issue for real bargains and hard to find items. It's a quick and sensible means too, of disposing of tools, equipment, and anything else for which you no longer have use. Rates appear at the top of next page.

Your advertisement in this one column by one inch space costs only \$14.00 per issue — and we'll provide copy service

SECTION

Rates for display space in the Service Section are \$14.00 per inch per insertion. One-inch minimum space accepted. Closing date — twentieth of the month preceding issue. No charge for copy and layout service.

Classified Advertising

Rates for classified advertising are 15 cents for each word, including heading and address. One inch \$7.00. Count nine words for keyed address. Minimum \$2.50. Closing date 20th of month preceding publication.

✓ SITUATIONS OPEN

DISTRICT SALES MANAGER — Major manufacturer of complete line of warm air heating and cooling equipment needs district sales managers for the following territories: Michigan, Ohio, Indiana, Illinois, Kansas, Missouri, Good background in heating and cooling sales is desired. Salary, bonus and full expenses. This is a real opportunity for a go-getter. Send resume, references and photo with first letter. Write Key 1225, American Artisan, 6 N. Michigan Ave., Chicago 2, Ill.

SUPERINTENDENT for progressive sheet metal shop in Midwest. Give detailed account of experience, age, marital status, type of work, number of men supervised, size of shop, etc., in first letter. Address Key 1221, American Artisan, 6 N. Michigan Ave., Chicago 2, Ill.

✓ SITUATION WANTED

POSITION WANTED IN SHEET METAL — Estimating, shop production supervision, project scheduling, material and equipment requirements. Twenty-five years experience as journeyman and supervisor in all phases of sheet metal. Presently employed. Please reply Key 1228, American Artisan, 6 N. Michigan Ave., Chicago 2, Ill.

BUSINESS OPPORTUNITY

FOR SALE — successful heating and plumbing business established. Selling for health reasons. Business is good and this is a real money-maker. In the heart of good hunting and fishing in Southern Idaho. Reply Krc 1227 American Artisan, 6 N. Michigan Ave., Chicago 2, Ill.

✓ AGENTS WANTED

REPRESENTATIVES WANTED — for top quality line of registers, grilles, diffusers, etc. Established manufacturer has a number of exclusive territories open. Unusually fine commission basis for manufacturers' agents calling on architects, engineers, contractors, etc. Please reply Key 1213, American Artisan, 6 N. Michigan Ave., Chicago 2, Illinois.

EXCEPTIONAL OPPORTUNITY

for MANUFACTURER'S REPRESENTATIVE

Several choice protected territories open on nationally known full line oil and gas warm air heating and air conditioning. Write Sales Dept. AA, Morrison Steel Products, Inc., Buffalo 7, New York.

AGENTS WANTED — Representative Wanted — Eastern Manufacturer of Prefabricated Duct and Fittings seeking agent for North Jersey area. Agent must have related warm air heating lines and call on Plumbing, Heating, Roofing and Sheet Metal Jobbers. Address Key 1229, American Artisan, 6 N. Michigan Ave., Chicago 2, Ill.

Special message for manufacturers

TO: Sales Promotion Mgr.
AMERICAN ARTISAN
6 N. Michigan Avenue
Chicago 2, Illinois

I'm interested in advertising in the Service Section of AMERICAN ARTISAN. Listed below is a "write-up" for an ad I've been thinking of running. Also enclosed is a photo of my product. Please layout a sketch of an ad for me covering:

- ☐ 1" (\$14.00)
☐ 2" (\$28.00)
☐ 3" (\$42.00)
☐ 4" (\$56.00)

your rough copy here

Name _____

Firm _____

City _____ Zone _____ State _____

✓ AGENTS WANTED

WANTED — MANUFACTURERS' REPS — Major manufacturer of complete line warm air heating and cooling equipment wants manufacturers representatives in the following territories: Metropolitan New York, Outstate New York, Washington-Baltimore area, Western Pennsylvania, Tennessee, Louisiana, Alabama, Arkansas, Oklahoma. This is a hot proposition and can be a money-maker for a well-established rep who knows his business. Send full details first letter. Write Key 1226, American Artisan, 6 N. Michigan Ave., Chicago 2, Ill.

SIGNALS

HEAT FAILURE

GUARDS SYSTEMS AGAINST FREEZING

- Visible and/or audible alarm
 - Signals 6 to 8 hours in advance
- Uses current only when signalling



HEAT-EYE is constant protection against failure of any heating plant. Thermostatically operated, provides reliable alarm in homes of vacationing people, new construction, many commercial establishments. Pre-set at 50 deg. F., signals trouble hours before any damage. Ideal for heating contractors.

Prices: \$7 per unit; lots of 10, \$6.50 per unit. All orders C.O.D. Satisfaction guaranteed. Write to ▶▶▶

Herbert Fuel Devices, Darien, Conn.

Climb Safely

"All Rubber Ladder Shoes"

Order Today
\$3.50 pair Postpaid
Johnson Ladder
Shoe Co.
Eau Claire, Wis.



SEND FOR THIS
VALUABLE BOOK...

CORRECT PRACTICE in OIL HEATING

**A complete reprint of the
valuable series
by J. J. Mirabile**

This special series covers every angle of oil burner work, including arrangement of shop . . . stocking parts . . . record-keeping . . . installation procedures . . . the handling of crews . . . how to make heating surveys . . . how to size combustion chamber . . . how to install thermostat . . . how to start the burner . . . how to use testing instruments . . . and how to operate a service department. It contains, as well, a complete list of causes and cures of oil burner trouble that will serve as a reliable guide in making service calls.

Every shop handling oil burner jobs should own this book. Full size, 8½ by 11 inches — 57 pages of practical helps. Send \$1.00 for a copy to the address below.

KEENEY PUBLISHING COMPANY

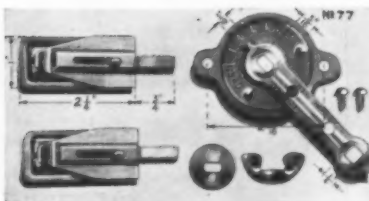
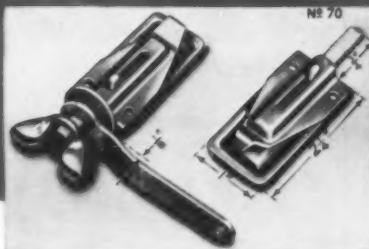
6 No. Michigan Ave., Chicago 2, Ill.



NO. 406 DIFFUSAIRE POPULAR AND HOW!



EASY TO INSTALL. As indicated in the accompanying illustration, "FLEXI-TAB" fold-down boot retainers are provided in the base to firmly hold front and rear sides of the boot. "Knock-outs" permit increasing the boot opening from the normal 12 inches to 14 inches. The face screws are conveniently located at the top to further increase ease of installation.



So popular that we actually have been hard pressed to keep production ahead of demand. This proves, beyond the shadow of a doubt, that virtually every installer who tries this "18" diffuser agrees it is the finest of its type on the market. The No. 406 is tops in appearance . . . tops in construction . . . tops in performance . . . easy to install.

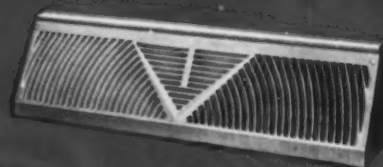
ALL STEEL with the tried and proven sturdiness that is complete assurance against warping.

GREATER AIR HANDLING CAPACITY . . . as much as 25% more than some diffusers of this type . . . due to a combination of a full 38 sq.

inches of free area and the fact that the entire face is in one upwardly slanted plane.

PERFECT AIR PATTERN . . . the curvilinear fins in conjunction with the horizontal fins result in a perfect air pattern to blanket the window or wall area . . . ideal for both heating and cooling.

By all means inspect the No. 406 and matching No. 487 Return Air Intake at your H&C Jobbers.



KWIK-WAY DAMPER REGULATOR SETS

No. 70 for larger dampers. Bearings are set securely with one hammer blow. Retractable bearing bolts.

No. 69 for smaller dampers. Similar but furnished with one bearing.

No. 77. With indicating dial and KWIK-WAY bearings.

No. 80% has two solid bearings.



OTHER ACCESSORIES

FURNACE CHAIN: Three types, flat link safety chain and two types of wire chain. 30', 36', 100' cartons and 500' reels. Also special lengths and "S" hooks.

ALSO: Warm air dampers, Damper Tips and Clips, Furnace Regulator Sets, "S" Hooks and heavy duty Casing Clips.



HART & COOLEY MANUFACTURING CO.

500 EAST EIGHTH ST., HOLLAND, MICHIGAN

• IN CANADA: HART & COOLEY MANUFACTURING CO., FORT ERIE, ONTARIO

WHY THE BIG TREND TO METLVENT?



ALIGN

PUSH
TOGETHER
AND
PRESS
TABS IN
GROOVE

SLIDE
BAND
DOWN
OVER
TABS TO
LOCK

Curled end of outer pipe for
locking—prevents against damage.

Locking Tabs hold pipe securely
together, can be adjusted when

Locking Band slides over tabs
easily, locks them firmly.

Insulating Air Space.

Spacers maintain correct
insulating air space.

Tight Fitting Joints—Safe and
secure.

Aluminum Inner Wall for quick
vent warm-up.

Galvanized Steel Outer Pipe for
maximum protection.

Die Formed End for perfect fit.

Deep Locking Groove assures
solid joint.

Inner and outer pipe curled
together as an integral unit.

the answer is as simple as A, B, C.

A IMPORTANT LABOR SAVINGS

Metlvent units go together like a hand in a glove. No screws at the joints are required . . . the locking ring is simply slipped down over the tabs which instantly engage and lock securely. Many dealers tell us this ease of installation saves as much as 25% of labor costs.

B PERFECT FIT . . . ALWAYS.

Inner and outer pipes are curled together and properly spaced PERMANENTLY. Bottom edges are curled to give them rigidity, guard against damage and insure original perfect shape for easy jointing—ALWAYS.

C PROMPT DELIVERIES

to wherever you are located are assured by our huge stocks of finished goods—one of the largest in the nation. You get what you want when you want it.

Try Metlvent on your next job. The money you save, the fine job that results and the all around satisfaction it gives, is almost sure to induce you to join the constantly increasing parade of Metlvent users.



**HART & COOLEY
MANUFACTURING CO.**

500 EAST EIGHTH ST., HOLLAND, MICHIGAN

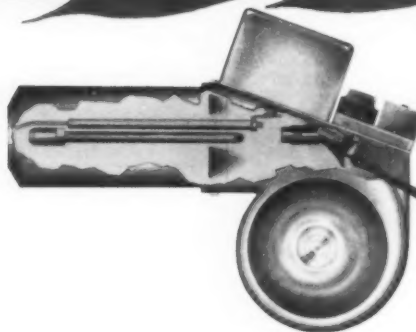
IN CANADA: HART & COOLEY MANUFACTURING CO., FORT ERIE, ONTARIO



**ROUND and OVAL UNITS
and FITTINGS TO IDEALLY
SUIT EVERY REQUIREMENT**

WHITE-RODGERS gives you NOW...
what others can only plan for the future!

3 YEARS PROVEN DEPENDABILITY



**NEW COMPACT
668 PRIMARY
CONTROL**

Fits on
4" x 4" junction box



**FOOL-PROOF
FLAME DETECTOR**

"Cad cell" responds
instantaneously to
visible radiant rays
of the oil flame

668 KWIK-SENSOR

Revolutionary OIL BURNER PRIMARY CONTROL

STOPS CALL BACKS commonly encountered with
stack-mounted controls, as reported by dealers and servicemen:

- Combustion switch "out of step"
- False safety lockouts caused by:
 - poor draft conditions
 - soot insulated helix
 - short cycling system

STOPS CALL BACKS commonly encountered with other
burner-mounted controls, as reported by dealers and servicemen:

- Soot and dirt on detector lens
- False safety lockouts caused by: • low pump pressure • cold air in basement
- Dirty or open detector contacts
- Detector held "in" by hot chamber



Write today for Folder R-1700, which gives complete details

WHITE-RODGERS

ST. LOUIS 23, MISSOURI

TORONTO 8, CANADA

